Environmental and Social Management Framework (ESMF)

Project Name:

Metro Manila Flood Management Project

May 1, 2017

REPUBLIC OF THE PHILIPPINES

ENVIRONMENT AND SOCIAL MANAGEMENT FRAMEWORK

(ESMF)

FOR THE

METRO MANILA FLOOD MANAGEMENT PROJECT

Prepared by:

Department of Public Works and Highways (DPWH) and

Metro Manila Development Authority (MMDA)

May 1, 2017

FOREWORD

This Environment and Social Management Framework (ESMF) is prepared by the Department of Public Works and Highways (DPWH) and Metro Manila Development Authority (MMDA) for the World Bank-financed Metro Manila Flood Management Project (MMFMP).

This document is a collaboration of the Team set up by the Department of Public Works and Highways and Metro Manila Development Authority, with suggestions from partner agencies including the National Housing Authority (NHA), Social Housing Finance Corporation (SHFC), the Department of Environment and Natural Resources (DENR), and selected Metro Manila Local Government Units (LGU).

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LIST OF ABBREVIATIONS AND ACRONYMS

BA	–	Barangay Assembly
CNC	–	Certificate of Non-Coverage
DENR	–	Department of Environment and Natural Resources
DP	–	Displaced Persons
DPWH	-	Department of Public Works and Highways
DRM	–	Disaster Risk Management
EA	–	Environmental Assessment
ECC	–	Environmental Compliance Certificate
ECP	–	Environmentally Critical Project
ESIA	–	Environmental and Social Impact Assessment
EIAM	–	Environmental Impact Assessment Monitoring
EMB	–	Environmental Management Bureau
ESA	–	Environmental and Social Assessment
ESMF	–	Environmental and Social Management Framework
ESMP	–	Environmental and Social Management Plan
GOP	–	Government of the Philippines
GRM	–	Grievance Redress Mechanism
GRS	–	Grievance Redress System
IEC	–	Information and Education Campaign
LGU	–	Local Government Unit
MMDA	-	Metro Manila Development Authority
MOA	–	Memorandum of Agreement
NGO	–	Non-Government Organization
NHA	–	National Housing Authority
O&M	–	Operation and Maintenance
PD	–	Project Description
PDO		Project Development Objective
PMO	–	Project Management Office
POW	–	Program of Work
PS		Pumping Station
RAP		Resettlement Action Plan
ROW	–	Right of Way
RPF		Resettlement Policy Framework
SIA	–	Social Impact Assessment
SHFC	–	Social Housing Finance Corporation
SP	–	Subproject
TOR	–	Terms of Reference
WB	–	World Bank

GLOSSARY

Certificate of Non-Coverage	A certification issued by the Environmental Management Bureau certifying that, based on submitted project description, the project is not covered by the EIS System and is not required to secure an ECC.
Compensation	Refers to payment in cash or in kind at market value or replacement cost, as relevant, for land acquisition and loss of fixed assets.
Cumulative Impacts	Additive impacts from various sources.
EMB Director	The Director of the DENR-EMB at the Central Office
EMB RD / EMB RO Director	The Director of the DENR-EMB at the Regional Office
Environment	Surrounding air, water (both ground and surface), land, flora, fauna, humans and their interrelations.
Environmental Compliance Certificate	A certificate of Environmental Compliance Commitment to which the Project Proponent may be required to take additional specific actions to conform with Philippine environmental laws and supporting regulations.
Environmental and Social Impact Assessment (ESIA)	A process that: (1) documents the salient baseline environmental and social features of a project's (or subproject's) area of influence, as applicable; (2) identifies and assesses the impacts of the project on the salient environmental and social features in the project's area of influence; and (3) provides mitigation, monitoring, and management measures to address adverse impacts during project construction, operation, and where relevant closure or decommissioning.
Environmental and Social Management Plan (ESMP)	A component of the ESIA which sets out specific plans, including budgets, organizational arrangements and responsibilities for social and environmental impact management over the life of project
Land Acquisition	Refers to the process whereby land and immovable assets of persons or entities are to be taken for project needs.

LGU	Local Government Unit; administrative and political urban bodies which make up the Metro Manila area.
MMFMP	Metro Manila Flood Management Project.
Project-Affected Persons (PAP)	Refers to people who are physically or economically displaced by a project through land acquisition (permanent or temporary) or by project activities which may preclude or interrupt their economic activities or social well-being.
Project Proponent	Any natural or juridical person intending to implement a project or subproject.
Public Participation	Open, transparent, gender-sensitive, and community-based public involvement in the ESIA and other project processes, which is aimed at ensuring the social acceptability of a project or subproject involving the broad range of stakeholders. Public participation begins at the earliest possible stage of project / subproject design, and continues through implementation to completion and closure.
Rehabilitation	Compensatory and developmental measures implemented in consultation with PAPs to ensure restoration of income streams and compensation at market or replacement costs for assets and land acquired for project purposes.
Relocation	Refers to the physical resettlement of PAPs from land areas needed for project purposes to resettlement sites.
Replacement Cost	Refers to the value determined to be fair compensation for real property based on its productive potential, replacement cost of houses and structures (as reckoned on current fair market price of building materials and labor without depreciation or deductions for salvaged building materials), plus transaction costs, and the market value of residential land, crops, trees and other commodities.
Resettlement Action Plan (RAP)	Refers to all measures taken to ensure displaced persons are assisted to improve their livelihoods and living standard, or at least restore them to pre-displacement levels. World Bank-supported projects require a RAP in compliance with OP 4.12, on Involuntary Resettlement.

Stakeholders	Entities which may be directly or significantly affected by a project or subproject. This includes the project proponent, mandated government agencies, local government units who have jurisdiction, and local communities, including locally-based NGOs or community groups.

PART A: INTRODUCTION AND PURPOSE OF THE ESMF

1. This document presents the Environmental and Social Management Framework (ESMF) for the Metro Manila Flood Management Project (MMFMP), which supports a program of the Government of the Philippines (GoP) to reduce flooding in the Greater Metro Manila area.

2. An Environmental and Social Impact Assessment of the Project was carried out, the results and findings of which were used to draft this ESMF. In addition, a Resettlement Policy Framework (RPF) was also drafted as part of the ESMF. Public consultations, carried out as part of project preparation contributed to the finalization of this document.

3. This ESMF serves to guide development, implementation, and operation of the MMFMP in compliance with the requirements of the World Bank's environmental and social safeguard policies and applicable GoP laws and regulations. The MMFMP covers the wider and extensive area of Metro Manila; as a result, subprojects will be undertaken in a variety of ecological and social contexts in a number of LGUs, which are the political and quasi-autonomous administrative units which make up Metro Manila. The ESMF presents social and environmental safeguards screening procedures, specific arrangements for management of environmental and social impacts, (both negative and positive,) including monitoring and reporting for the project as a whole and for each pumping station subproject to be undertaken under Component 1, Modernization of Drainage Areas. This ESMF also covers impacts related to activities under Component 2 (Minimizing Solid Waste in Waterways) and 3 (Participatory Housing and Resettlement) of the Project.

4. More specifically, the ESMF serves as a guidance instrument to ensure that environmental and social impacts are identified and assessed, and that appropriate mitigation, management, and monitoring measures are incorporated and applied in implementation. It sets out the institutional and organizational arrangements, procedures, and implementation arrangements for identification, management and monitoring of environmental and social impacts, mitigation and management. It addresses mechanisms for public consultation, participation, and disclosure of project documents as well as for redress of possible grievances and management of project-related issues which may arise during implementation. The conduct of a Cumulative Impact Assessment is also described.

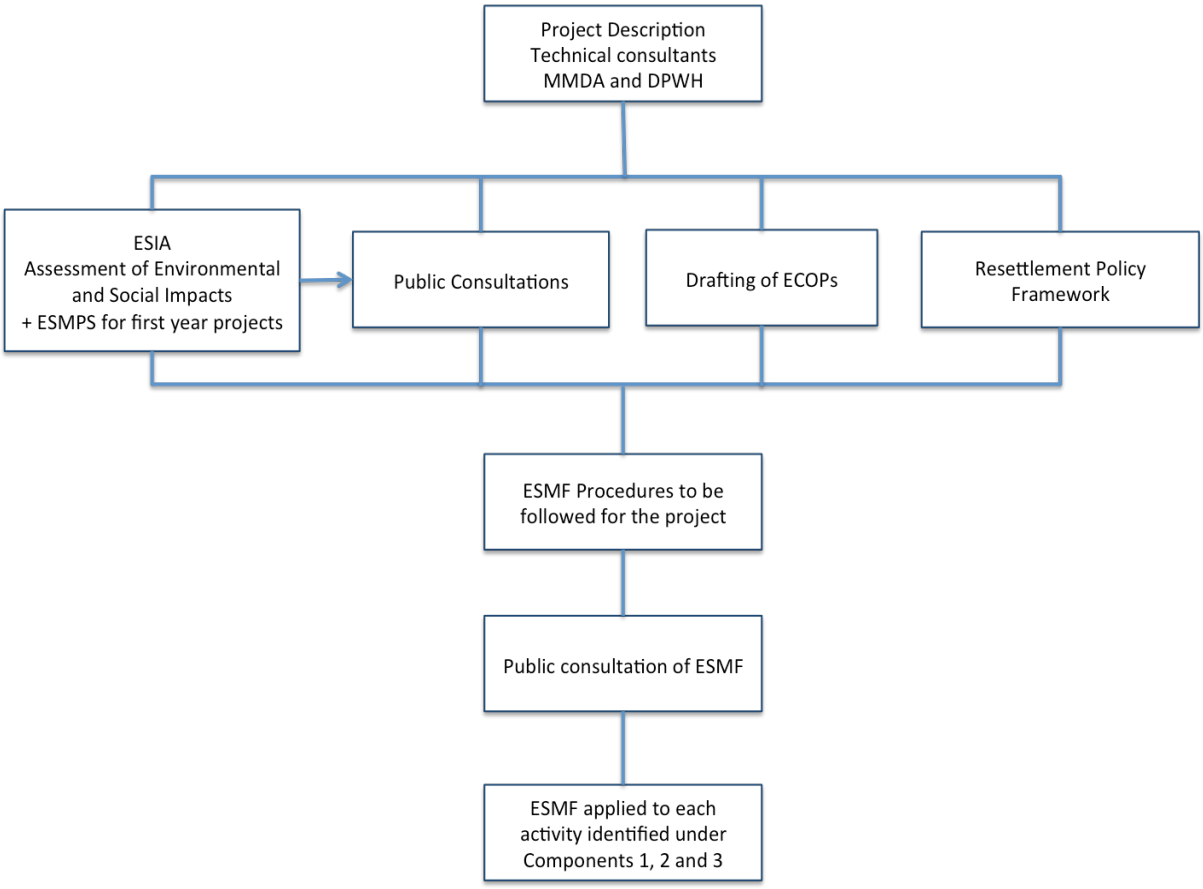


Figure 1: Schematic of the ESMF

5. The document is divided into three parts, which is described as follows in Table 1:

Table 1: Organization of the ESMF

Section	Description
Part A: Introduction and purpose of the ESMF	Context, purpose, and structure of the ESMF; a description of the project and its components.
Part B: Regulatory Requirements, Safeguards Policy Principles and Objectives	This section reviews the policies of the GOP and WB on environmental and social safeguards; it provides specifics of applicable WB environmental and social safeguard policies.
Part C: Safeguards Procedures	This section provides more detailed guidance on the processing of environmental and social safeguards within the project, including subprojects screening and classification, preparation of safeguards instruments, disclosure and consultation, and grievance redress. It also outlines the approach to the conduct of a Cumulative Impact Assessment.

Project Description

6. In order to improve the overall flood management conditions in Metro Manila, the Government of the Philippines (GOP) has prepared a Flood Management Master Plan for the Greater Metro Manila area with technical and financial assistance from the World Bank. The Master Plan which sets out priority structural and non-structural measures, was approved by the National Economic and Development Authority (NEDA) Board on September 4, 2012. The plan will be implemented over a period of 20 to 25 years.

7. The main elements of the Master Plan for Flood Management are as follows:

- Structural measures to reduce flooding from river systems that run through Greater Metro Manila;
- Structural measures to eliminate long-term flooding in the flood plain of Laguna de Bay;
- Structural measures to improve urban drainage;
- Non-structural measures, such as flood forecasting and early warning systems, and community-based flood risk management; and
- Improved institutional organization and capacity to deal with flood management in an integrated manner.

8. In order to improve the overall flood management conditions in the Greater Metro Manila Area, all interventions under these elements will have to be implemented. Each element has

unique solutions that are not linked and may be implemented independently from each other. Implementation of the master plan has started with 'easy' interventions, such as dredging, river bank protection, and improvements to a small number of pumping stations that will have direct and immediate localized impact.

9. Several agencies are involved in flood management activities, including DPWH, MMDA, LGUs, and PAGASA (weather agency), but there is a lack of overall inter-institutional coordination and management. The aim of the institutional studies to be financed with trust funds is to determine the best organization that can provide overall leadership, management, and responsibility for flood management, and to bring flood management within the government's proposed integrated water resources management agenda, as an integral part of river basin planning.

10. The Metro Manila Flood Management Project is one of the three key elements of the Master Plan to address drainage issues in Metro Manila. The Project will provide Metro Manila with more immediate flood relief. The Project will also support improvements to solid waste management in waterways that are served by pumping stations and also necessitate physical resettlement and economic rehabilitation of project affected persons (PAP). The majority of the PAPs are Informal Settler Families (ISF) residing within the technical footprint areas of existing pumping stations which are to be rehabilitated or upgraded.

11. It is important to define the technical footprint (area of influence related to resettlement; see also paragraph 25). The Government of the Philippines launched in 2011 the Oplan Likas Program: Lipat para Iwas Kalamidad At Sakit (Operational Plan: Evacuation to Prevent Calamity and Sickness). The objective of the PhP 50 billion Oplan Likas Program was to relocate about 100,000 ISFs in Metro Manila out of danger areas during a five year period. Prominent danger areas considered under the program included flood prone areas adjacent to and over waterways where ISFs are affected on a regular basis by flooding. The development objective of the Metro Manila Flood Management Project is to improve flood management in selected areas of Metro Manila.

12. The Project is not linked with Oplan Likas as it does not meet the three criteria of paragraph 4 of OP 4.12 - Involuntary Resettlement, namely: (a) directly and significantly related to the Bank-assisted project; (b) necessary to achieve its objectives as set forth in the project documents; and (c) carried out, or planned to be carried out, contemporaneously with the project. However, some activities financed by the project overlap spatially with Oplan Likas as they are located within the technical footprint of the project. Moreover, the Bank has provided TA in support of Oplan Likas as explained in Annex 6 of the Project Appraisal Document (PAD).

13. The overlap is determined by the Project area of influence for resettlement, also referred to as the 'technical footprint'. Resettlement under the Project will be unavoidable where dwellings and structures established by informal settlers impede the flow or inhibit access for effective maintenance and operation of the facilities. The technical footprint covers the pumping station and its related facilities as well as sections of waterways serving the pumping stations. The physical limits of technical footprints for waterways are established on the basis of hydrological and engineering criteria for each drainage area. Waterway sections within the technical footprint are typically in relatively close proximity to the pumping facility. People who live or have properties within the Project's technical footprint or those who were resettled from the technical footprint under Oplan Likas are considered project-affected persons (PAP) under the Project and OP 4.12 applies.

14. The assistance to be provided to PAPs by the project will depend on the time frame of resettlement. Resettlement activities that took place prior to Bank engagement in the project (December 8, 2014 - the date of project identification mission) within the footprint of the project is considered a legacy issue. Resettlement before that date has to be in accordance with country legislation and consistent with objectives of OP 4.12. Should this past resettlement not have been consistent with the national legislation and the objectives of OP 4.12, remedial measures will have to be provided. This will be done at the community level for equity purposes and to avoid conflicts with persons relocated to the same resettlement sites from other areas not related to the project. The safeguard instrument to be prepared is a Due Diligence Report that will describe the remedial measures to be provided and an action plan if and as needed to ensure the consistency of past rehousing/resettlement with the objectives of OP 4.12.

15. After the date of project identification, resettlement has to be compliant with OP 4.12, including compensation at full replacement cost for loss of assets and other resettlement assistance. Two groups of PAPs have been identified (see Table below): (i) people who were resettled from the technical footprint after the project identification date (December 8, 2014), but prior to the date a census is initiated in all sub-project sites during the early stage of project implementation (cut-off date); and (ii) people who will be resettled from the technical footprint after the cut-off date during project implementation. For the first group due diligence will have to be conducted and the individual PAPs that were resettled from the technical footprint will have to be traced to the extent possible. Should their current resettlement conditions not be in compliance with OP 4.12, the project will have to provide remedial measures to address the gaps, described in a RAP and measures will have to be applied retroactively to ensure compliance with OP 4.12. Remedial measures will include compensation to individual PAPs, or through community level interventions for equity purpose if this is acceptable to the PAPs.

16. For purposes of the ESIA, the project area of influence (referred to as the 'project footprint') of each subproject can comprise the pump station and yard, drainage areas, waterways and drainage channels, and ancillary facilities such as access roads, disposal sites for dredged materials and solid wastes from pumping stations, resettlement sites, as well as temporary sites needed for equipment parks and materials stockpiles. The project footprint for ESIA purposes is different from the technical footprint for resettlement purposes described above. The technical footprint overlaps the project footprint, but is typically smaller.

COMPONENT 1: MODERNIZATION OF DRAINAGE AREAS (US$375.2 MILLION)

17. Many of the 57 pumping stations managed by MMDA are over 30 years old and no longer operate at full capacity. MMDA has carried out an inventory of its existing pumping stations and it is expected that this component will modernize about 36 existing pumping stations. In addition about 20 new stations will be constructed, with the exact number and locations to be determined during project implementation. Five pumping stations (Vitas, Balut, Paco, Tripa de Gallina and Labasan) are scheduled for implementation starting in the first year of the project. The Department of Public Works and Highways will be responsible for the implementation of the component, in cooperation with the Metro Manila Development Authority.

18. As part of the modernization program pumps will be replaced with modern, more efficient, and higher capacity units. The design discharge determination will be underpinned by hydrological studies of the drainage areas and the best type of pump will be selected for each given situation, including submersible pumps, possibly with variable speed drive, as well as horizontal axial pumps.

19. A program of dredging and cleaning of waterways and drainage systems and increasing the water retention capacity within the project drainage areas will also be developed and implemented. This could include rooftop rainwater collection, retention of drainage water in public areas such as basketball courts, parking garages, etc. The component will also provide modern dredging and drainage cleaning equipment for DPWH and MMDA.

20. Annexes D, E, and F provide details of the pumping stations in Metro Manila, the total number and location of the pumping stations that are expected to be included in the project, and the dredging requirements of the waterways associated with the five project year one (PY1) pumping stations.

COMPONENT 2: MINIMIZING SOLID WASTE IN WATERWAYS (US$48.0 MILLION)

21. Since the enactment of RA 9003, awareness of the threat posed by improper disposal of solid waste to the natural environment has increased, however, enforcement of this legislation varies significantly across and even within LGUs. Solid waste remains a major challenge

threatening Metropolitan Manila's waterways and severely hampers the optimal functioning of the pumping stations.

22. Urban drainage has been hampered by the accumulation of solid waste in waterways and at pumping stations, which intensifies the flood hazard and increases the risk of direct damage and economic losses. As seen in Figure 2, pumping stations are directly affected by the accumulation of solid waste: numerous pumping stations are functioning at less than their rated capacity, and this is compounded by functional obsolescence.

23. ISF communities are key contributors to solid waste that accumulates in Metro Manila's waterways, but they are not the sole contributor: businesses, both large and small, and residents with land tenure are responsible as well. Moreover, while communities along waterways are key contributors to solid waste accumulation, improperly disposed waste within the catchment area of each station ultimately enters the same waterways.

24. The specific objective of Component 2 is to improve solid waste management practices within the drainage areas of Project financed pumping stations, building on the existing systems implemented by LGUs, barangays, NGOs, and households. This will be achieved through strengthening existing waste collection systems and facilities, improving transport / disposal systems, raising community awareness, and providing incentives for individual behavioral modification. Component 2 will support the following main activities:

- Strengthening solid waste collection systems, including necessary equipment;
- Implementing an incentive-based approach to improve solid waste management efforts;
- Conducting targeted Information, Education, and Communication (IEC) campaigns on solid waste management; and
- Development of an integrated management information system (MIS) and a solid waste master plan for Metro Manila.

COMPONENT 3: PARTICIPATORY HOUSING AND RESETTLEMENT (US$55.76 MILLION)

25. This component will support a community participatory approach to resettlement of Informal Settler Families from the technical footprint in a drainage area. Almost all pumping stations, both existing and proposed, are found in densely populated areas, with ISFs living along many of the waterways served by the pumping stations. Existing pumping stations to be modernized under the project are typically well fenced in with no informal settlers. However, a small number of new pumping stations would involve at least some resettlement, mostly of ISFs, from the area where new pumping stations are planned and from along a few

waterways where ISFs have encroached on the water. For the entire project, the magnitude of project-affected people, mostly ISFs, is expected to be around 2,500 families or 11,500 people.

26. Component 3 aims to resettle PAPs who are currently located in the technical footprint of a drainage area. Through the Project intervention, they will have access to better housing, basic community infrastructure, better livelihoods, and stronger community organization. Component 3 will achieve this by consolidating and amplifying the gains made by government's existing innovative shelter solutions such as SHFC's High Density Housing (HDH) Program, DILG's LGU Seed Fund and NHA's In-city Resettlement Program.

27. Specifically, this component will fund land acquisition, housing construction, site development, rental support, livelihood assistance, and various technical assistance and capacity-building activities that help strengthen the communities and implementing agencies. Government counterpart fund will finance land acquisition, site development, and housing construction, whereas IBRD funding will be used for the remaining activities. Component 3 will comply with procedures and requirements under WB OP 4.12 (Involuntary Resettlement).

28. Where related resettlement has already taken place by Oplan Likas from the technical footprint in a drainage area, the component will assess the needs for, through due diligence, and implement either individual assistance activities to PAPs and/or community development activities in selected sites where people have been resettled for the purpose of carrying out the Project activities. Community development activities can include community based infrastructure, community livelihood programs, and local economic development.

COMPONENT 4: PROJECT MANAGEMENT & COORDINATION (US$20 MILLION)

29. Component 4 will support the operation of the Project Management Offices (PMO) in DPWH and MMDA with respect to the management and coordination of their respective parts of the Project, including in each case: (i) payment of incremental operating costs; (ii) provision of office equipment and materials; (iii) provision of training and carrying out of knowledge sharing and peer-to-peer learning activities; (iv) provision of technical assistance in engineering, monitoring and evaluation for the Project, and design of activities for the implementation of the Program; and (v) establishment and operation of a grievance redress mechanism.

Project Areas of Influence

30. For purposes of the ESIA, the project area of influence (referred to as the 'project footprint') of each subproject can comprise the pump station and yard, drainage areas, waterways and drainage channels, and ancillary facilities such as access roads, disposal sites for dredged

materials and solid wastes from pumping stations, resettlement sites, as well as temporary sites needed for equipment parks and materials stockpiles. The project footprint for ESIA purposes is different from the technical footprint for resettlement purposes described in paragraphs 11 and 12. The technical footprint overlaps the project footprint, but is typically smaller.

31. In assessing impacts on resettlement, the technical footprint is used which physically extends along sections of the waterways served by a given pumping station where encroachments of informal settlers or other physical obstacles inhibit water flow or maintenance activities needed for optimal operation of the pumping stations. Resettlement of people from the technical footprint normally extends the area of influence to other sites which may be developed for urban housing of project-displaced people.

32. Social impacts will relate chiefly to land acquisition for the new pumping stations which will necessitate Resettlement Action Plans to address physical and economic displacement of the above-referenced people residing upon or in close proximity to needed sections of waterways serving the pump stations. Resettlement impacts on host communities may also be a factor; however given an in-city approach to resettlement, host community issues are not anticipated to be significant. Avoiding and minimizing economic displacement and enabling affected people to resettle in reasonable proximity to their places of employment is a key criterion in resettlement options as is detailed in the RPF.

33. Anticipated impacts on the environment are localized and generally manageable: this will entail installation of new equipment for existing pump stations for which activities will be within the perimeters of these facilities. Construction of new pumping stations will involve site development and related civil works. Cleaning or dredging of waterway sections linked to pump stations is anticipated where water flow obstructions or access for maintenance purposes is hampered. Other manageable impacts include disposal of construction debris, solid waste, worn-out pumps and equipment, spent fuel, oil and lubricants, dredged silt and spoils. Disposal of dredge material is anticipated to be the more significant environmental impact. Occupational health and safety measures during construction and for staff engaged in operations and maintenance will be needed. Disruptions to local traffic and community safety during construction may be an issue in some pumping station locations.

Environmental and Social Safeguards Issues: Overview

34. MMFMP is classified as a Category "A" project with respect to World Bank OP 4.01, Environmental Assessment. This categorization is based on the significant number of subprojects to be implemented throughout the Greater Metro Manila area and the resettlement of people in a complex urban environment. Scoping and subsequent investigations carried out by DPWH and MMDA indicated that significant social impacts will be associated with resettlement. Many, if not most of those residing in waterway areas

are informal settlers, who are generally very poor and reliant on income sources in the vicinity of their current locations. Environmental impacts associated with pumping station rehabilitation and new pumping station subprojects are expected to be limited to civil works and related activities which are limited and manageable. The scope and intensity of social and environmental impacts will vary from subproject to subproject.

35. The full range of cumulative effects for the project will be assessed through a cumulative impact assessment which will be conducted during the second half of project implementation after all drainage areas to be improved under the project have been identified. A terms of reference (TOR) for cumulative impact assessment follows later in this document.

36. Impacts from land acquisition will be minimized to the best extent possible, chiefly by keeping resettlement confined to the technical footprint areas needed for optimal performance of the pumping stations. Nevertheless, a total number of households to be resettled are estimated at around 2,500 or about 11,500 individuals.

Environmental Safeguards Issues

37. Environmental impacts of the project are associated with dredging of waterways, disposal of solid waste and water hyacinth from the waterways, civil works for new pumping station, rehabilitation of existing pumping stations to be outfitted with new pumps and related equipment, solid waste management facilities under component 2 and works related to development of resettlement sites. Impacts of pumping station rehabilitation works are anticipated to be minor, temporary and localized. Impacts from the dredging activities may be significant depending on the quality of sediment, especially if there is a presence of contaminants. Impact assessment for each subproject will identify appropriate mitigation and management measures. These measures include the application of environmental codes of practice (ECOPs) and other specific measures needed identified in the project Environmental and Social Management Plan (ESMP). Typical ESMPs will set out management and remediation measures to ensure safe disposal of construction debris, solid waste, dredged silt and spoils, disposal of worn-out pumps and equipment, spent fuel, oil and lubricants from the pumping stations. ESMPs will routinely include plans for occupational and community health and safety during construction and operation of the facilities. ESMPs will also address issues related to localized traffic disruptions and impacts on commerce and related activities in neighboring communities. The ECOPs will include the management of typical impacts related to construction. Environmental Health and Safety practices will also be included in the ECOP including worker safety from noise, injury from moving machine parts and provision of proper sanitation. Exposure to waters contaminated by raw sewage is an occupational risk that needs to be managed through proper EHS practices i.e use of personal protective equipment and provision of showers and hand washing facilities. The GEF support will have minimal environmental impacts.

Social Safeguards Issues

38. Land acquisition, both permanent and temporary, will be needed for the construction of new pumping stations. Clearing of limited sections of waterways where the flow is hampered by ISFs structures will be necessary in some subprojects for optimal functioning and sustainability of both old and new pumping stations. Land acquisition requirements will vary, with larger pumping stations potentially necessitating sites as large as 3 hectares. During the identification and prioritization of potential new sites, DPWH will avoid, to the extent feasible, acquisition of land parcels with multiple owners and encumbrances for new pumping stations. Construction phase social impacts are expected to be limited, however temporary impacts may necessitate mitigation measures, such as those to manage restriction of access to roadside commercial establishments and residential buildings. The resettlement of informal settlements along waterways is unavoidable both for the safety of ISFs from flood risks, which are recurrent and pose significant dangers, as well as for the proper functioning of the pumping stations. The approach to resettlement, as set out in the Resettlement Policy Framework, will focus on in-city rehousing to facilitate retention of income streams for those displaced persons whose current livelihoods are highly dependent on proximity to places of work.

39. Resettlement and economic rehabilitation of project-affected people is especially challenging in the context of an on-going Philippine government-supported program known as *Oplan Likas*. This PhP 50 B - five year undertaking, (which began in 2011 and is scheduled to end in December, 2016), resettles ISFs to safer locations away from high risk areas, including waterways, railways, etc. Clearing waterways of IFSs has been a major activity of *Oplan Likas*. Many of the waterways serving existing pumping stations have been cleared of ISFs since 2011. *Oplan Likas* continues to resettle ISFs throughout Metro Manila at an accelerated pace as the program is to conclude in mid-2016. The program is implemented by the National Housing Authority (NHA) and the local government units. This is a significant legacy issue for the project because a large number of ISFs have been resettled at out-of-city sites, far from their places of employment without adequate provision for restoration of livelihoods. It is thus highly probable that resettlement already undertaken by *Oplan Likas* will be a factor in assessing potential sites for new additional pump stations. This issue is addressed in more detail in the RPF.

Consultations and Public Disclosure

40. The project and ESMF and the results of the ESIA were discussed during consultations held on September 9, 2016 and November 18, 2016. The first consultation was mostly for local government units and government agencies. For the second consultation the public was invited by way of an announcement in a national newspaper and on DPWH's website. Copies of the documents that were discussed are available at the DPWH-Unified Project Management Office (UPMO), DPWH-Environmental and Social Safeguards Division (ESSD), DPWH-Unified Project Management Office (UPMO), and at the MMDA-Planning Office. The environmental and Social Management Framework, Resettlement Policy Framework, and the ESIA, including executive summary, were first disclosed on February 8,

2016. Updated safeguards documents were made available to the public on DPWH's website ahead of the November 18 public consultation.

41. The consultation meeting on September 9, 2016 took place in DPWH head office and was attended by representatives from local government units (LGU), Social Housing Finance Corporation, Pasig River Rehabilitation Commission, Presidential Commission for Urban Poor (PCUP), MMDA, and district engineering offices of DPWH. A total of 85 participants attended the public consultation. Key issues that were raised during the consultation meeting were about the participatory and programmatic approach that will be applied in the planning of the subprojects under the project. The participants suggested also studies on the integration of several small pumping stations, upgrading of the existing pumping stations in their locality, and close coordination with the local government units during planning and implementation. A suggestion was raised about the application of rainwater catchment system that will enable some communities to store rainwater and use this for other purposes instead of disposal to a waterway. The representatives from the housing sector requested DPWH to provide them the list and profile of the informal settler families to enable them to validate whether some of these families are already part of the "Oplan Likas" program. Overall, the participants fully support the project because of the benefits that flood control and solid waste management will bring to Metro Manila. Suggestions made by the participants did not specifically focus on the ESMP. Suggestions will mostly be taken into account during project implementation, such as the suggestion to integrate small pumping stations into one large one and to store water for use, which is already part of a larger subcomponent on green infrastructure.

42. The public consultation on November 18, 2016 took place in DPWH head office and was attended by officials from civil society organizations, government agencies (NHA, PCUP, DPWH), and LGUs. Participants of the consultation meeting supported the project and its scope. The discussion focused mostly on resettlement, with support for the proposed project-related participatory housing activities. The participants put emphasis to not rush the preparation for resettlement, but provide sufficient time for community organizing and community participation. Several participants mentioned that a two year preparation process is realistic. It will also be important to coordinate resettlement with other agencies and avoid a disconnect of schedules of partner agencies. Participants from such agencies as Habitat for Humanity and Presidential Commission on Urban Poor provided commitment to support DPWH and other agencies, as required. Suggestions made by the participants did not specifically focus on the ESMP. The suggestions and recommendations are mostly to be used during project implementation, for example during the preparation of resettlement action plans.

43. A number of community consultation activities have been organized by the DPWH to disclose the safeguards instruments to project affected persons and other interested people in each of the five PY1 areas. A first consultation meeting was held September 23, 2016 for the PAPs in Vitas pumping station. Stakeholders that participated included the City of Manila

through the Urban Settlements Office, officials and residents and PAPs of Barangays 150 and 93, NHA, PCUP, SHFC, and AGOM and Share Foundation, which are local NGOs and community-based organizations in the area. Similar community consultations were organized by DPWH, with support from other agencies, for the other four PY1 drainage areas from October 10 to 13, 2016, along with a stage two consultation for the PAPs in Vitas pumping station on October 10, 2016 to further discuss the details of the RPF and RAP. Participants in each of these consultations comprised barangay officials and interested residents. A separate consultation activity was held with resettled people at Towerville 6 Resettlement Site in San Jose del Monte, Bulacan to discuss the resettlement legacy issues and to learn lessons from past Government resettlement activities that will help improve project implementation. Prior to these public consultations, all the safeguards instruments including a Project Information Booklet in Tagalog containing the pertinent details of the project and executive summary of the RAP and ESIA were widely distributed in advance to the stakeholders and PAPs.

44. The site-specific consultations were generally well attended, especially the Vitas and Paco consultations with more than 100 participants each. The participants were generally supportive of the project as measures to reduced flooding in the communities are deemed very important. In addition, to measures that reduces flooding, participants often mentioned the need to reduce solid waste in the waterways.

Project Cost and Financing

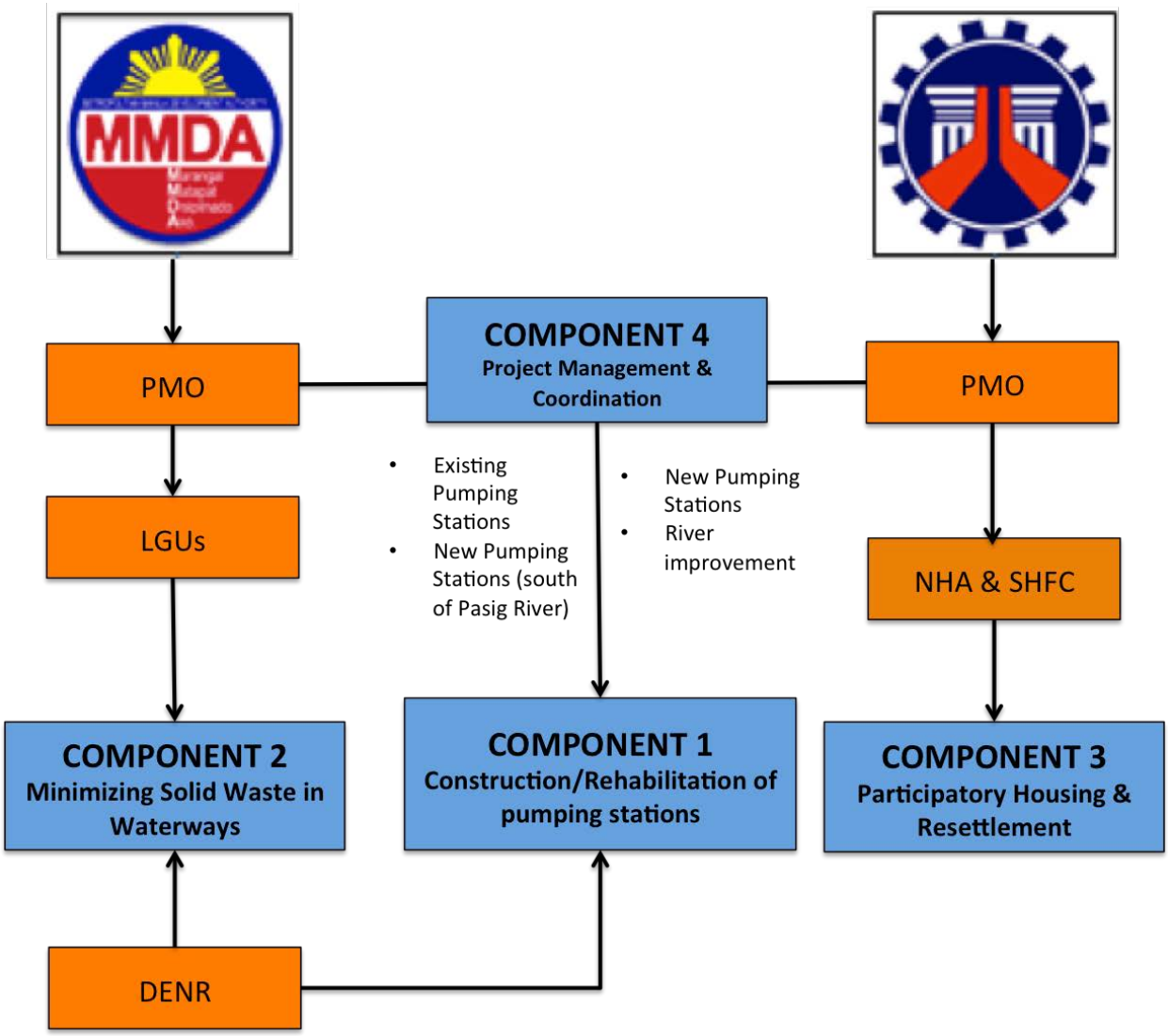
45. Initial project costs and source of financing are shown in Table 2.

Table 2: Project Costs and Financing

Financing (In USD Million)			
Total Project Cost:	500.00	Total Bank Financing:	300.00
Financing Gap:	0.00		

Financing Source	**Amount**
Borrower	200.00
International Bank for Reconstruction and Development	300.00

Institutional Arrangements



46. **Department of Public Works and Highways.** The DPWH is one of the three government departments mandated to undertake planning of infrastructure projects, such as national roads and bridges, flood control, water resources and other public works as well as the design, construction, and maintenance of national roads and bridges, and major flood control systems. DPWH serves as the engineering and construction arm of the government ensuring the safety of all infrastructure facilities and securing the highest efficiency and quality in construction. The DPWH has an Environmental and Social Safeguards Division (ESSD) under the Office of the Undersecretary for Planning that is tasked to ensure the integration and implementation of environment and social safeguards. The ESSD prepares/reviews environment impact statement (EIS), initial environmental examination (IEE), project description (PD), environmental management plan (EMP), and resettlement action plan

(RAP); conducts environmental assessment/screening, scoping; conducts monitoring of impacts and compliance of projects; identify and manage climate change issues and concerns (e.g. rainwater collection system, cleaning/clearing of waterways, sustainable development of Manila Bay, non-structural measures, etc.); assists in the conduct of public consultation; assists in the conduct of environmental sampling and monitoring; develop Gender and Development (GAD) plans and programs, among others. The ESSD is divided into three (3) units, namely: (i) Environmental Safeguards Section (ESS), (ii) Social Safeguards and Right-of-Way Section (SSROW); and (iii) National Sewerage and Septage Management Program Section (NSSMP) (Figure 2). The ESSD has years of experience working with World Bank (e.g. NRIMP2) and the division is knowledgeable with the conduct of environmental and social assessment for road projects, public/stakeholder consultations, development of safeguards mitigation measures, and other safeguards aspects to meet national laws and WB Operational Policies. However, the division needs to develop its capacity in terms of environment and social safeguards for flood control and solid waste management projects. ESSD is complemented by 18 regular personnel.

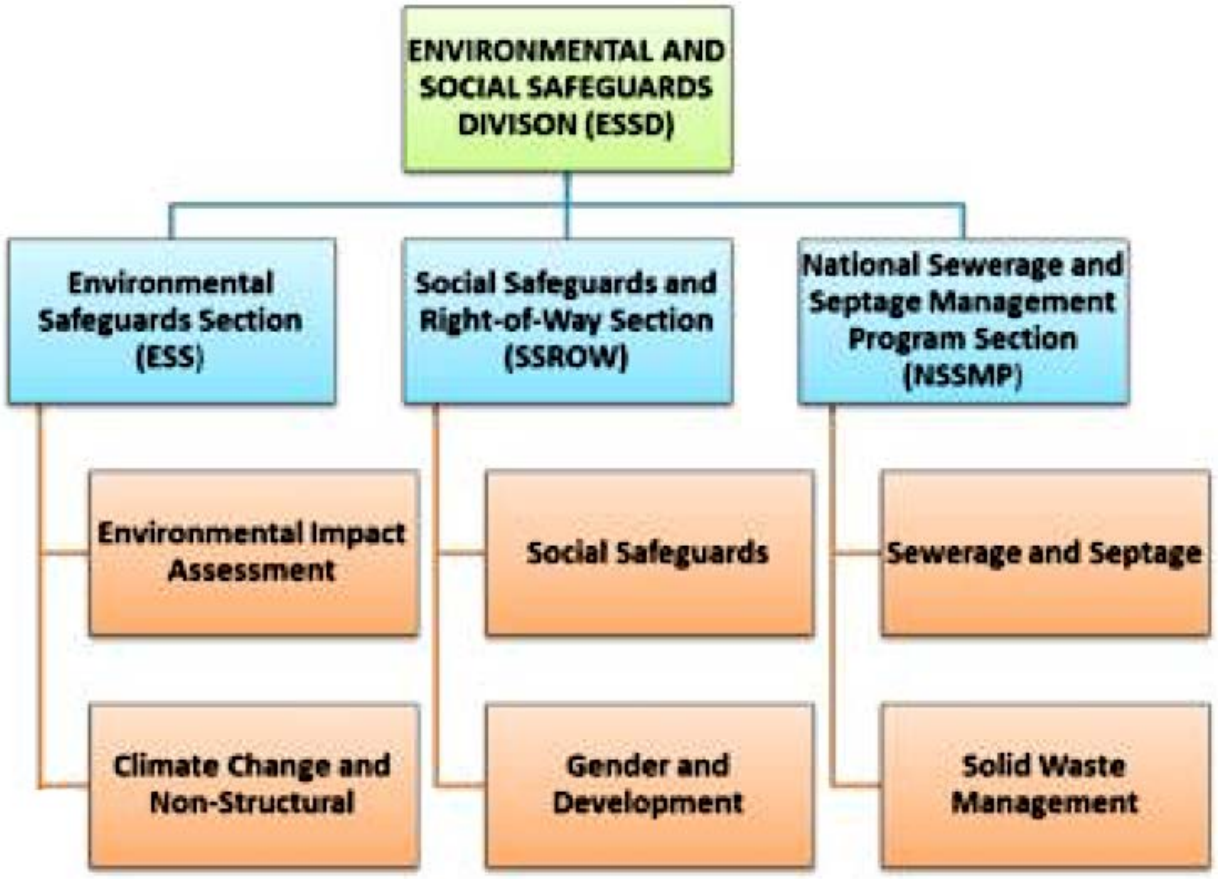


Figure 2: Organizational Structure of DPWH's Environmental and Social Safeguards Division

47. **Metropolitan Manila Development Authority**. The Metropolitan Manila Development Authority (MMDA,) is one of two designated project implementation agencies for the Project. As the lead institution for water management at the greater metropolitan scale, MMDA oversees the regional flood control management mechanism for Metro Manila. MMDA manages and operates 57 pumping stations and related water management and drainage infrastructure facilities throughout the greater metropolitan area. Unlike the DPWH, the MMDA does not have a dedicated unit/office in charge of ensuring environment and social safeguards. However, the MMDA has other specific mandates that somehow relate to environment and social safeguards such as on (i) solid waste disposal and management, (ii) flood control and sewerage management, (iii) urban renewal, zoning, and land use plan and shelter services, (iv) health and sanitation, urban and pollution control, (v) public safety, and (vi) transport and traffic management. The following are the different divisions of the MMDA and their respective mandates:

a) Development Planning – includes the preparation of medium and long term development plans, evaluation and packaging of projects, investment programming and coordination as well as monitoring of plans, programs, and project implementation.
b) Transport and Traffic Management – includes the formulation, coordination and monitoring of policies, standards, programs and projects to rationalize the existing transport operations, infrastructure requirements, the use of thoroughfares, and promotion of safe and convenient mass movement, and implementation of traffic engineering services and traffic education programs.
c) Solid Waste Disposal and Management – includes the formulation and implementation of policies, standards, programs and projects for proper and sanitary waste disposal including the establishment and operation of sanitary landfill and associated facilities.
d) Flood Control and Sewerage Management – includes the formulation and implementation of policies, standards, rules and regulations, programs and projects for an integrated flood control, drainage and sewerage system.
e) Urban Renewal, Zoning and Land Use Planning and Shelter Services – includes the formulation, adoption and implementation of policies, standards, rules and regulations, programs and projects to rationalize and optimize urban land use and provide direction to urban growth and expansion, rehabilitation and development of slum and blighted areas, the development of shelter and housing facilities and the provision of necessary social services.
f) Health and Sanitation, Urban Protection and Pollution Control – includes the formulation and implementation of policies, rules and regulations, standards, programs and projects for the promotion and safeguarding of the health and sanitation of Metro Manila for the enhancement of ecological balance, and the prevention, control and abatement of environmental pollution.

g) Public Safety – includes the formulation and implementation of programs, policies and procedures to achieve public safety, preparedness for preventive or rescue operations in times of calamities and disasters, and coordination and mobilization of resources for rehabilitation and relief operations in coordination with national agencies concerned.

48. The Planning Office of MMDA became one of the focal groups during the preparation of the ESMF and the ESIA for the five pilot sub projects. The Planning Office has no personnel trained in the field of environment safeguards but has personnel familiar with resettlement and land acquisition issues under its Urban Development Division. As observed in the audits of existing pumping stations, the MMDA needs to strengthen its capacity in terms of environmental and social impact assessment, compliance with national environmental laws and regulations, and implementation of mitigation and monitoring measures to minimize environmental and social impacts of pumping stations. The MMDA also needs training on WB Operational Policies.

49. **Local Government Units (LGUs).** The LGUs also undertake flood control works, mainly urban drainage improvement, to protect people from floods. The LGUs of Metro Manila operate other pumping stations and related water control infrastructure such as secondary and tertiary drainage channels but the major flood control works are carried out by DPWH through the District Engineering Offices. LGUs have proposed pumping station upgrades and construction of 3 new pumping stations and related works to augment drainage capacity in flood-prone and underserved areas, which will also be included in the Phase 1 project. Participating LGUs, (LGUs to benefit from new or rehabilitated pumping stations) will play the lead role in implementing Component 3 (on resettlement). As a condition of subproject inclusion in a given LGU, it is the responsibility of the LGU to identify land or sites for re-housing PAPs in reasonable proximity to income sources. Support can be provided by the National Housing Authority (NHA) and the Social Housing Financing Corporation (SHFC) where mortgage schemes are applicable options for resettlement. Local citizen's organizations and NGOs may also play a role. This aspect is discussed in full detail in the RPF.

50. **Department of Environment and Natural Resources.** The mandated environmental regulatory agency for environmental compliance is the Department of Environment and Natural Resources (DENR). The DENR is responsible for the review and approval of Environmental Assessments and Environmental Management Plans to be implemented by the subprojects. Upon its approval, DENR issues Environmental Compliance Certificates (ECCs) or Certificate of Non-Coverage (CNC) for subprojects to be implemented as they are taken up.

51. DPWH will manage construction of new pumping stations and refurbishment of existing pumping stations while MMDA will be responsible for solid waste management. The Unified Project Management Office – Flood Control Management Cluster (UPMO-FCMC)

of DPWH, Flood Control and Sewerage Management Office (FCSMO) and Solid Waste Management Office (SWMO) of MMDA, and related agencies shall be involved in the implementation of subprojects. DPWH and MMDA are the two implementing agencies; each will establish a Project Management Office. DPWH and MMDA will engage appropriate staff, supplemented by contractor experts to prepare environment and social management plans and resettlement and related social impact management plans where land acquisition necessitates physical movement of people or where project activities preclude customary use of resources and disrupt income streams of people in the project's area of influence. DPWH and MMDA will supplement environmental management, resettlement and related activities with an External Monitoring Agent, who will be contracted to support the PMOs with monitoring of environment and social safeguard compliance.

As part of the capacity building program of the DPWH and MMDA, the UP Learning Center of environmental and social sustainability will assist both agencies including the LGUs in the strengthening of capacity in conducting environmental and social assessments, preparation of ESIA documents, and the development and implementation of environmental management and monitoring plans specific for flood control projects.

52. Roles and responsibilities of each agency are as follows in Table 3.

Table 3: ESMF Roles and Responsibilities

Agency	Role and Responsibilities
DPWH and MMDA PMOs	*Executing agencies with overall responsibility for the MM Flood Management Project, Phase 1 implementation.* • Ensure that sufficient funds are made available to properly implement this ESMF and all necessary instruments to be applied. • Ensure that all subprojects, regardless of financing source, comply with the provisions of the ESMF and *WB environmental and social policies and particularly WB POLICY OP 4.01 and Op 4.12 as embodied in this framework*. • Ensure that subprojects comply with GOP environmental laws and regulations. • Ensure that dedicated PMO staffs are engaged to oversee ESMF implementation. • Ensure that necessary resources are allocated to obtain Environmental Compliance Certificate (ECC) or Certificate of Non-Coverage (CNC), Tree Cutting Permit, as applicable, and other required permits from DENR prior to award of civil works contracts. • Ensure that Permit to Operate (PTO) for the generator sets,

Agency	Role and Responsibilities
	Discharge Permit for liquid wastes and Hazardous Waste generator I.D. for hazardous wastes are secured during the operation of the pumping station. • Ensure the establishment and implementation of an environmental and social grievance redress mechanism, as described in the ESIA and this ESMF, to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the Project's environmental and social safeguards performance. • Ensure that a resettlement grievance management mechanism is established and operational as indicated in the RPF. • Ensure that bidding and contract documents for contractors and sub-contractors include relevant environmental and social requirements of the ESMP and RPF. • Ensure submission of semi-annual monitoring reports on ESMP implementation to WB and DENR. • Ensure that adequate funds for monitoring and laboratory testing of air quality, water quality, sediments/dredged materials, etc., are made available in a timely way for environmental and social management capacity-building activities of financial institutions, subproject proponents as described in the ESMP, RPF and ESMF.
Contractors	*Contractors (and their sub-contractors) engaged to construct or provide related services needed to realize subprojects.* • Comply with all contractual obligations to meet GOP regulations and ESMP / RPF conditions as conveyed in subproject works contracts. • Ensure compliance of sub-contractors engaged to provide services under subproject contracts. • Recruit qualified staff to ensure contractor's compliance contract obligations. • Contractors and their sub-contractors, engaged to provide related services should have adequate financial capacity and experience/track record to ensure satisfactory and timely completion of projects.
Local Government Units (LGUs)	*Governing administrative units in whose jurisdictions subprojects will be implemented* • Assist MMFMP PMO with subproject(s) selection; verify areas

Agency	Role and Responsibilities
	identified for the construction of new pumping stations. • Ensure in-city land sites or other in-city accommodations are secured and available for people to be resettled before final selection of subprojects. • Carry out environmental scoping, assessments and environmental mitigation plans as needed where new sites are taken for resettlement of PAPs. • Engage staff and ensure technical expertise is in place to carry out resettlement-related tasks as stipulated in the RPF. • Ensure timely and effective monitoring and reporting on progress of works, management of grievances and related issues, and compliance with environmental and social policy obligations as set out in the ESMF and RPF. • Assign a focal person to coordinate with the LGU and PMO concerned agencies on the implementation of the project. • Assist in public consultation and participation and disclosure activities.
National Housing Authority and Social Housing Finance Corporation	*GOP agencies mandated to facilitate resettlement and re-housing solutions for the urban poor* • Assist LGUs with resettlement-related undertakings as requested by the LGUs. This may include: • Assisting in public consultation and PAP's participation and disclosure activities; • Assistance in planning and implementation of subproject-related resettlement projects; • Ensuring that involuntary resettlement components are compliant with the RPF, ESMF.
Department of Environment and National Resources	*Environmental regulatory authority of the GOP. Implementing Agency for the GEF support* • Monitor the water quality in the Manila Bay catchment area. • Validate changes/improvement in water quality as a result of activities of the project, particularly on solid waste management. • Reviews and approvals of environmental assessment reports and applications for Environmental Compliance Certificates (ECCs) / Certificate of Non-Coverage (CNCs) for MMFMP sub-projects.

Agency	Role and Responsibilities
	• Issuance of ECCs/CNCs and other environmental permits. • Monitoring of subprojects' environmental performance. • Ensure that safeguards considerations are included in the outputs of the Technical Assistance

PART B: REGULATORY REQUIREMENTS, SAFEGUARD POLICY PRINCIPLES AND OBJECTIVES

Review of Applicable GOP Environmental Laws and Regulations

53. The following national laws and regulations provide a framework for environmental management in the Philippines:

- Philippine Constitution of 1987, Article II, Section 15 and 16
- Presidential Decree 1151, 1977 on Philippine Environmental Policy
- Presidential Decree (PD) No. 1586, 1978 on the Philippine Environmental Impact Statement (EIS) System (PEISS);
- Republic Act No. 9275, 2004 on the Philippine Clean Water Act;
- Republic Act No. 9003, on the National Ecological Solid Waste Management Act.
- Republic Act 7160: Local Government Code which provides for a system of decentralization whereby local government units shall be given more powers, authority, responsibilities, and resources including the delivery of basic services such as solid wastes collection and disposal and flood management in their areas of jurisdiction.
- Republic Act 6969. An Act to Control Toxic Substances and Hazardous and Nuclear Wastes.
- Republic Act 8749. Philippine Clean Air Act of 1999.
- Presidential Proclamation No. 2146, 1981 on Environmentally Critical Projects / Areas.
- Administrative Order No. 42 by the Office of the President 2002, describing categories of projects and areas subject to the EIS System.
- DENR Administrative Order No. 2003-30, the Implementing Rules and Regulations (IRR) for the Philippines EIS System (2003), and its Revised Procedural Manual issued August 2007
- Memorandum Circular No.: 2010-14 Standardization of Requirements and Enhancement of Public Participation in the Streamlined Implementation of the Philippine EIS System.
- EMB Memorandum Circular 2014-005 Revised Guidelines for Coverage Screening and Standardized Requirements.
- Executive Order 291, 1996, Improving the Environmental Impact Statement System

- EMB Memorandum Circular 2015-008 Implementation of Online Processing of Environmental Compliance Certificate (ECC) Applications for Category B projects requiring Initial Environmental Examination (IEE) Checklist report forms under the PEISS system.

- EMB Memorandum Circular 2016-001 dated January 18, 2016 "Requiring Online Submission of Compliance Monitoring Report or CMR Reports".

GOP Laws and Regulations related to land acquisition, resettlement, and social safeguards

54. The key legal and administrative provisions are:

- The Bill of Rights of the Constitution of the Republic of the Philippines states: In Article III, Section 1, "No person shall be deprived of life, liberty, or property without due process of law, nor shall any person be denied the equal protection of the laws." In Article III, Section 9, "Private property shall not be taken for public use without just compensation."

- Executive Order 1035 (1985) requires conducting of Feasibility Studies, Public Information campaign, parcel surveys and asset inventory. It also provides for compensation for acquired land at fair market value based on negotiations between owner and appraiser; relocation assistance to tenants, farmers and other occupants; financial assistance to farmers and agricultural tenants equivalent to the average harvest for the last three years but not less than P 15,000/ha; Disturbance compensation to agricultural lessees equivalent to 5 times the average gross harvest during the last 5 years; and compensation for improvement on land acquired under Commonwealth Act (CA) 141.

- CA 141, Public Land Act (1936) institutes classification and means of administration, expropriation and disposition of alienable lands of the public domain.

- Supreme Court Ruling (1987) defines just compensation as fair and full equivalent to the loss sustained to enable affected household to replace affected assets at current market prices.

- Republic Act 6389 provides for disturbance compensation to agricultural leases equivalent to 4 times the average gross harvest in the last 5 years.

- Republic Act 8974 (2000) which facilitates the acquisition of ROW, site or location for National Government Infrastructure Projects and for other Purposes. Implementing Rules and Regulations of RA 8974 was also issued. This mandates the use of replacement value of land and structures (without depreciation).

- Republic Act 7279 (1992) "Urban Development and Housing Act" mandates the provision of a resettlement site, basic services and safeguards for the homeless and underprivileged citizens.

- Republic Act 7160 (1991) "Local Government Code" which allows the LGUs to exercise the power of eminent domain for public use.

- Republic Act 10752 or "Right-of-Way Act" signed on March 7, 2016, which facilitates the acquisition of right-of-way site location for national government infrastructure projects.

Applicable World Bank Safeguard Policies

55. The following environmental and social safeguards apply to the Project:

56. ***Environmental Assessment OP/BP 4.01***: This policy is triggered as MMFMP will undertake a significant and widespread number of pumping station subprojects throughout Metro Manila, of which some will be new facilities. In addition there will be solid waste management interventions under Component 2 and resettlement and housing activities under Component 3. At the subproject level of Component 1, it is realistically anticipated that site-specific but manageable and reversible environmental impacts will be associated with the activities of the project including rehabilitation of existing pump stations, the construction of new pumping stations, cleaning/dredging of sections of associated waterways and drainage channels, solid waste management interventions and resettlement activities. Component 2 specific impacts are related to the disposal and management of collected solid wastes including removal and disposal of water hyacinth which are also identified under Component 1. For Component 3, the environmental impacts are primarily due to the construction of resettlement sites. Subproject civil works will necessitate management measures for collection and disposal of construction debris, solid waste, dredged silt and spoils as well as for the disposal of worn-out pumps and equipment, spent fuel, oil and lubricants. MMFMP will ensure effective measures are put in place for occupational health and safety during construction and operations phases of subprojects. Subproject environmental management provisions also include actions to address disruptions to localized traffic and commerce in areas neighboring subprojects. The solid waste component, which focuses on systemic improvements to collection of solid waste at source, is not anticipated to produce adverse environmental effects and is expected to provide additional formal employment.

57. Environmental impacts are anticipated to be localized and similar in most, if not all instances. Each subproject will be assessed for environmental impacts, which can be managed and mitigated by means of environmental codes of practice (ECOPs) and ESMPs. ECOPs will be based on good practices and will provide guidelines for environmentally sound management

of construction-related impacts associated with all components, including any resettlement and rehousing studies and schemes to be supported under Component 3 (see Annex H).

58. Site-specific Environmental and Social Management Plans (ESMP) will be prepared for each subproject and activities under all three components, as they are brought forward during implementation. ESMPs will also include, as applicable, measures to ensure sound and compliant environmental management of any off-site or ancillary facilities needed for subprojects. Ancillary facilities could include disposal sites for solid waste and dredged materials, new or widened access roads, new or modified electrical transmission or other pipelines needed for the facilities. The due diligence report of any off-site or ancillary facilities will include the following major elements: (i) description of facilities, including both past and current activities; (ii) site investigation procedure; and (iii) findings on environmental compliance of facility. Annex B presents due diligence checklist for existing pumping stations and ancillary facilities and guide questions for the conduct of environmental due diligence of waste disposal sites and resettlement sites. The due diligence screening will identify gaps and deficiencies that will have be identified and addressed in the ESIA/ESMP.

59. The initial first year activities will focus on five existing pumping stations where there is a clear need and a hydrologically sound basis for rehabilitation and modernization. Specific environmental management plans have been prepared for these first year subprojects.

60. MMFMP will carry out system-wide studies of the metropolitan drainage areas to ensure that subsequent subprojects for new or existing pumping stations will be optimized. Year one will thus provide for prioritization and finalization of the inclusion list for existing and new candidate pumping stations proposed by DPWH, in consultation with MMDA and the LGUs, over the life of MMFMP. Scoping and assessments of environmental and land acquisition (resettlement) impacts will be important factors in subproject selections.

61. ***Natural Habitats OP/BP 4.04***: This policy is not anticipated to be triggered. Civil works on existing pumping stations, associated drainage areas and waterways, and related activities will take place in original locations which have been fully converted by human activity in built-up urban areas over many years and are not characterized as natural habitats.

62. ***Physical Cultural Resources OP/BP 4.11***: This policy is triggered as a precautionary measure. Impacts on physical cultural resources are highly unlikely if not precluded for rehabilitation works to be carried out on existing sites. The ESMF provides for screening of new pumping station sites and off-site facilities for physical cultural properties.

63. A chance find procedure is given in the ESMF to be applied if objects or structures of cultural importance are discovered during implementation (see Annex I). The chance find procedure suspends construction activities; the site is delineated and secured to prevent any damage or loss of removable objects. The findings are evaluated by the Cultural Properties

Division of the National Museum according to the various criteria relevant to cultural heritage, (including the aesthetic, historic, scientific or research, social and economic values.) The decision on how to handle the find is determined by the National Museum. Construction work will resume only after authorization is given by the responsible local authorities. The chance find procedure is included as a standard provision in construction contracts.

64. ***Involuntary Resettlement OP/BP 4.12***: Civil works in the first year will focus on modernizing and capacity up-grading of five existing pump stations, which are fenced and free of encroachment. No land acquisition on or around pumping station sites is anticipated for this initial phase. However, resettlement of ISFs living over and along related waterways serving the pumping stations to be modernized, who have not already been resettled under *Oplan Likas*, will be required. While no land acquisition will be needed for new pumping stations in the first year's subprojects, some resettlement will be required for people living on encroachments in the waterways.

65. One of the five first year pumping station rehabilitation subprojects, Vitas PS, will involve resettlement. A RAP has been prepared for families residing under a bridge and inside the waterway for Vitas PS. At Paco PS, a number of informal settler families were previously moved under the GOP's *Oplan Likas* resettlement program in 2011 – 2012. Due diligence was carried out to assess their current status vis-à-vis the general objectives of OP 4.12.

66. Most of the new pumping station sites are expected to be in populated urban areas. Land acquisition for new PS sites is anticipated, some of which may be acquired from private lots. To the degree possible, new pumping stations will be located along public roads or waterway easements in order to minimize displacement of people. Nevertheless, based on scoping and reconnaissance carried out by the task team and MMDA, it is reasonable to estimate that as many as 2,500 ISFs will be resettled from key sections of waterways and to make way for new PS construction.

67. In most of Metro Manila's LGUs, informal settlers (ISF) have built dwellings on waterway easements or inside the waterways themselves. Many informal settlers have lived in such locations for many years and have established livelihoods, mostly in the informal sector, along with social networks in these communities. The GoP has resettled and continues to resettle ISFs to physically safer locations under an on-going government program (*Oplan Likas*), which is set to be completed in mid-2016. The *Oplan Likas* program was undertaken by the GoP as a separate activity, which was driven by citizens' concerns and implemented primarily for social and public safety purposes. The program has resettled an estimated 44,000 ISFs of which some 42,000 ISFs have been re-housed in out-of-city locations. The plan has set a target of resettling some 73,000 ISFs upon completion, the great majority of which will be re-housed at off-city locations, where access to work, social networks, and services is a challenge. Oplan Likas is an ongoing program of the NHA and the LGUs.

68. Management of the legacy issues from previous resettlement under *Oplan Likas* is discussed in full detail in the appended RPF. In subprojects where there are ISFs to be resettled, the project will implement resettlement at in-city locations to preclude a disconnection or disruption of their income streams and social networks in full compliance with OP 4.12. The RPF sets out OP 4.12-compliant measures to address resettlement under *Oplan Likas* before and after the date of World Bank engagement with the GOP for preparation of the MMFMP.

69. LGUs will ensure that in-city resettlement options are available for PAPs, especially ISFs who are highly dependent on their current locations for access to employment, as a precondition for inclusion of subprojects in MMFMP. LGUs will lead in management of resettlement with technical support, as and if needed, from NHA, SHFC, and community or civil society organizations. Financial and technical support is provided by MMFMP. Organizational arrangements are presented in detail in the RPF.

Gaps between GOP laws and regulations and the World Bank's Safeguard Policies

Environmental Safeguards

70. A comparison of applicable World Bank environmental safeguard policies, (OP 4.01, Environmental Assessment, OP 4.04 Natural Habitats and OP 4.11 Physical Cultural Resources (PCR) with the Philippine environmental laws and regulations shows some substantive gaps in procedure and content. The Philippine system generally espouses international principles on environmental assessment in Philippine EIA laws and regulations (PD 1586, DAO 2003-30 Procedural Manual), which are enforced by the Environmental Management Bureau (EMB) of the DENR. The ESMF serves to bridge these gaps to ensure that a comprehensive assessment of the environmental and social impacts of the subprojects is conducted to ensure conformity with WB environmental safeguard policies.

71. The following issues will be addressed under the MMFMP:

    a. **Screening, scoping and submission of environmental safeguards instrument**. A Screening Matrix has been developed in Annex A to identify impacts that may potentially occur as a result of project implementation. The screening matrix is intended to determine the safeguards instruments that will have to be prepared. The content and extent of the environmental safeguards information required in the DENR EIA Procedural Manual for environmental assessment includes the following:

        - Philippine EIA law uses project thresholds to determine coverage and requirements for an EIA; WB OP 4.01 requires screening of potential environment and social impacts to determine the EIA instrument to be prepared to assess and address impacts. Based on the recent EMB Memorandum Circular 2014-005 on project categorization, flood control projects may be classified as an environmental enhancement or direct mitigation project that require a Project Description report

(PDR) including pollution control and mitigation measures. A sample of a PDR with EMP is presented in Annex A-2. To date, flood control projects have been generally considered by the DENR-EMB as falling within the category of "environmental enhancement and mitigation" except when there is a dam structure. Flood control projects that involve dam structures would require either an EIA or IEE checklist, depending on the area of flooded reservoir or inundated area and/or water storage capacity. Annex A-1 shows the template of the IEE checklist to be submitted to DENR-EMB in securing the ECC. If the project involves an expansion or modification of an existing pumping station or ancillary facility with dam, the DENR-EMB will require an Environmental Performance Report and Management Plan (EPRMP) in securing an ECC. Overall, the project is required to go through the screening process using thresholds to determine whether the project is covered or not by the Philippine EIS system and to determine the environmental document to be submitted to DENR-EMB in securing the ECC or CNC. Considering that the screening process using thresholds under the Philippine EIS system does not consider the potential environmental and social impacts of the project, the MMFMP has developed a screening process to determine the safeguards instrument to be submitted to WB and DENR-EMB.

- Cumulative effects are not taken into account, such as the relationship of a project with other existing or planned projects.

b. **Monitoring and reporting of ESMP implementation.** Since most of flood control projects are not covered by the Philippine EIS system, there is limited means to monitor environmental compliance with the Philippine EIS System. However, there are other environmental laws such as the Philippine Clean Water Act (RA 9275), National Ecological Solid Waste Management Act (RA 9003), Philippine Clean Air Act (RA8749), and Toxic Substances and Hazardous and Nuclear Wastes Control Act (RA6969) wherein permitting and monitoring requirements are also imposed. DPWH will monitor the environmental compliance of the subprojects with the help of the MMDA and LGUs. DPWH PMOs environmental monitoring staff will conduct field visits, audits, reviews and evaluations of the proponents' self-monitoring compliance reports and report the project's overall safeguards performance to the WB on a semi-annual basis. The environmental compliance reports shall include compliance with other applicable environmental laws.

Compliance and effects/impact monitoring is also undertaken by EMB-DENR through the regular environmental monitoring activities such as river water quality and ambient air quality monitoring in established monitoring stations in Metro Manila.

Based on monitoring protocols, Third Party Auditors or independent service providers can be engaged to undertake environmental audit. The audit aims to objectively obtain and evaluate evidences to determine whether environmental performances of the project conform or comply with its commitments in the ESMP and other related documents. The

audit should cover the establishment of due diligence in preventing, detecting, and correcting violations.

Table 4: Comparative Analysis of the Philippine Environmental Laws and WB's Environment Safeguard Policies

KEY ISSUES	PHILIPPINE POLICY	WB POLICY	MEASURES TO FILL GAPS
Screening, scoping and submission of environmental safeguards instrument of sub projects	The Philippine EIS System uses thresholds to determine coverage and requirements for an EIA. Flood control projects without dam are classified as 'environmental enhancement or direct mitigation" project and are not covered by the system.	WB OP 4.01 requires screening of environmental and social impacts to determine the required safeguard instrument	A screening process is developed to identify the significant environmental and social impacts and determine the safeguards instrument to be submitted to WB and DENR by DPWH and MMDA. ECOPs and ESMPs will be prepared for each subproject and activities under all three components.
Cumulative impact assessment	Cumulative effects of a project with other existing or planned projects are not taken into account.	WB OP 4.01 requires the conduct of cumulative impact assessment.	Cumulative impact assessment will be done during the second half of project implementation after all project drainage areas have been identified.
Monitoring and reporting of ESMP implementation	Since the Philippine EIS System does not cover most of flood control projects, there is limited means to monitor environmental compliance with the Philippine EIS System. There are however other environmental laws through which environmental actions will be monitored.	WB OP 4.01 (environmental assessment) and 4.02 (environmental action plan) requires the implementation and reporting of environmental mitigation measures.	DPWH and MMDA will monitor environmental compliance of sub projects and prepare environmental compliance reports, to be submitted to WB on a semi-annual basis. The environmental compliance reports shall include compliance with other applicable environmental laws.

Social Safeguards (Land Acquisition and Involuntary Resettlement)

72. Gaps were identified between Philippine government policies and laws on entitlements to project-affected persons (PAP) and the WB's social safeguard policies contained in OP 4.12, Involuntary Resettlement. Measures to fill the gaps were proposed based on the principle that whichever applicable policy is best for the overall welfare of the PAP shall govern and shall be adopted. The comparisons of these policies are described in Table 5.

Table 5: Comparative Analysis between Philippine policies and laws on entitlements to project-affected persons and the WB's social safeguard policies[1]

KEY ISSUES	**PHILIPPINE POLICY**	**WORLD BANK POLICY**	**MEASURES TO FILL GAPS**
Persons Considered as Project-Affected Persons (PAPs)	PAPs consist of all members of a household who will be adversely affected by the project because their real property shall be acquired for government infrastructure projects	Persons/People impacted by Involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets; (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location.	Everyone who occupies land or structure and those that conduct livelihood activities at cut-off date within the ROW limits shall be identified and properly recorded including their condition in life, and their personal circumstances. Each person so identified shall be considered PAP and shall be classified accordingly to determine eligibility for any compensation or support towards a sustainable living condition.
Loss of Income or Sources of Livelihood	Silent regarding loss of income directly resulting from land acquisition.	Displace persons should be assisted to improve their efforts to improve their livelihoods and living standards or at least to restore them	The project should compensate for lost income and provide rehabilitation measures to improve livelihoods and living conditions of PAPs or at least restore them to pre-project level.
Treatment of Informal Settlers	R.A. 7279 states that eligible homeless and poor informal settlers in urban areas are entitled to resettlement if they are affected by development projects. However, R.A. 7279 limits this to residential informal settlers and is	Sections 15-16 stipulate that informal settlers should be provided resettlement assistance	The project should endeavor to replace lost structures and other assets of informal settlers. Replacement options include rehousing, rental support while waiting for the housing units to become available, transportation costs, and rehabilitation costs to restore lost livelihood.

[1] Mostly lifted from the Manila Bus Rapid Transit RPF based on Cebu Bus Rapid Transit Resettlement Action Plan, Department of Transportation and Communications, November 2012.

KEY ISSUES	**PHILIPPINE POLICY**	**WORLD BANK POLICY**	**MEASURES TO FILL GAPS**
	silent on informal structures on public or private land used for commercial purposes.		For structures that encroach on public lands and used for purely commercial purposes, compensation will be equivalent to the loss of business income only.
Taxes and Transaction Costs involved in the Transfer of Real Property	Current practice is to deduct capital gains tax, documentary stamp tax, transfer tax, registration fees and administrative expenses from compensation of affected land and structures	Taxes, administrative fees, and other transaction costs are not to be deducted from the total compensation due to the affected person/s	For transactions that are not a willing seller- willing buyer transaction type, the project should cover the cost of taxes, administrative fees, and other transaction costs.
Valuation of Affected Land	Philippine Constitution states that private lands expropriated or taken for the public interest shall be paid just compensation. The Supreme Court defines ―just compensation as current market value less the cost of any future benefits the landowner may derive from residual land. In negotiated settlements, government offers compensation based on the schedule of market values of the LGU or BIR zonal valuation before proceeding with expropriation.	Uses replacement cost without deduction of any future benefits the landowner may derive from the residual land	The project should use replacement cost for the valuation of land, which for urban land is defined as ― the pre-displacement market value of land of equal size and use, with similar or improved public infrastructure facilities and services and located in the vicinity of the affected land, plus the cost of any registration and transfer taxes.
Treatment of Residential and	Fixed improvements introduced by renters	Under OP 4.12 para 16: (i) compensation at full	Compensation at full replacement cost[2] for fixed improvements

[2] OP 4.12 explanation of replacement cost for houses and other structures: The market cost of the materials to build a replacement structure with an area and quality similar to or better than those of the affected structure, or to repair a partially affected structure, plus the cost of transporting building materials to the construction site, plus the cost of any labor and contractors' fees, plus the cost of any registration and transfer taxes. In determining the replacement cost, depreciation of the asset and the value of salvage materials are not taken into account, nor is the value of benefits to be derived from the project deducted from the valuation of an affected asset. Where

KEY ISSUES	**PHILIPPINE POLICY**	**WORLD BANK POLICY**	**MEASURES TO FILL GAPS**
Business Renters	on the land or structures automatically belongs to the land owner, unless there is a specific provision that the owner will compensate the renter for any fixed improvements introduced by the latter. The practice is to ask the landowner to sign a waiver, allowing the renter to be paid compensation for any fixed improvements.	replacement cost for loss of structures/assets other than land; (ii) resettlement assistance; and (iii) other assistance, as may be necessary to fulfill OP 4.12 objectives	introduced by the renter will be paid to the renter. Renter will be provided compensation for transfer costs and disturbance compensation[3] for temporary closure of the business establishment while transfer is ongoing. Computed at average daily net income of the business multiply by the number of days for the entire transfer period.

73. A Resettlement Policy Framework (RPF) has been prepared to address any involuntary land acquisition or land access restrictions resulting in physical or economic displacement of affected people or parties. The RPF sets out the provisions, (including organizational arrangements, consultation and participation of affected people, specifics of entitlements, implementation, monitoring, and closure procedures to ensure that the remedies for physical resettlement and economic rehabilitation of project-affected ISFs are fully compliant with World Bank Operational Policy 4.12.

74. The RPF also serves to meet the requirements of relevant laws and regulations of the Philippines to the extent that they coincide with World Bank OP 4.12 however, ***under the terms of the loan agreement, where substantive differences are found between Philippine laws and regulations and the requirements of OP 4.12, the higher standard will prevail.***

domestic law does not meet the standard of compensation at full replacement cost, compensation under domestic law is supplemented by additional measures so as to meet the replacement cost standard. Such additional assistance is distinct from resettlement measures to be provided under other clauses in OP 4.12, para. 6.

[3] Computed at average daily net income of the business multiply by the number of days for the entire transfer period.

PART C: SAFEGUARDS PROCEDURES

Safeguards preparation and process

75. This section provides guidance on safeguards processing. This guidance covers all activities under Components 1, 2 and 3 using an integrated ESIA approach. The integrated ESIA approach will be applied to subprojects wherein one or more of the components of MMFMP are involved. The project area of influence (project footprint) can cover the drainage area, pump station and yard, waterways and drainage channels, and associated ancillary facilities such as disposal sites for dredged materials and solid wastes from pump stations, and relocation or resettlement areas. Assessment of resettlement impacts will cover the project's technical footprint which is narrower than the project area of influence. The technical footprint physically extends along sections of the waterways served by a given pumping station where encroachments of informal settlers or other physical obstacles inhibit water flow or maintenance activities needed for optimal operation of the pumping stations, as well as resettlement areas. The guidance serves to ensure that potential impacts and practical mitigation measures are identified early on in the planning and selection process for pumping stations, solid waste management interventions, and housing and resettlement activities to be carried out under MMFMP.

76. As activities and sub-projects will be prepared for financing in a continuous manner during the implementation period, screening for potential environmental and social impacts will be conducted and mitigation and management measures will be developed in line with the agreed ESMF and RPF (see Figure 3). The MMFMP process for social and environmental impact screening and subsequent mitigation and management measures will follow the steps outlined below. The World Bank will review the documentation prepared and may undertake site visits in this process to ensure that Bank procedures were followed, prior to DPWH requesting financing for a given sub-project.

77. During project implementation, the packaging of sub-projects will logically follow a comprehensive drainage area approach which means that for one drainage area, screening and impact assessment of activities under all three components will be done as one assessment. This means that for each drainage area/pumping station selected, activities under Component 1, 2 and 3 will be considered under one impact assessment study.

Step 1: Identification of candidate pumping stations and other activities

78. One of the main activities of the project is the modernization of pumping stations Identification of pumping stations will be done in the first years of implementation of the project. DPWH in collaboration with MMDA and the appropriate LGUs will identify and select the sites for new pumping stations and pumping stations to be rehabilitated and modernized. In addition to hydrological factors, environmental and land acquisition (resettlement) impacts will be a consideration in the selection of subprojects and timing of their implementation. Activities under component 2 and 3, some already identified and well defined will be screened for impacts.

Step 2: Screening of subprojects

79. Using the ESIA, a screening matrix has been developed based on the impacts assessed for the first five pumping station sub projects and the proposed solid waste management interventions and resettlement activities associated. This screening matrix will identify other impacts not covered under an ECOP and impacts related to activities under Components 2 and 3. An Environmental Code of Practice has been provided which will cover typical construction related impacts related to pumping station rehabilitation primarily. The ECOP will apply to all pumping station sites. Using the screening matrix (see Annex A), as part of project implementation, the DPWH and MMDA PMOs in coordination with the LGU will screen pumping station subprojects and related works under Component 2 and 3, for social and environmental impacts and identify the specific safeguards instruments or plans needed to adequately address those impacts and meet ESMF and RPF requirements. The assessment of impacts will also cover the ancillary facilities associated with the project activities e.g. disposal sites, dredging disposal areas, resettlement sites. Social and environmental impact evaluation requires specialized technical skills. The DPWH and MMDA PMOs may assign relevant specialists from their agencies as well as qualified specialized consultants to assist them in this task. (MMFMP will provide training on safeguards to the PMOs.) DPWH and MMDA PMOs will submit the results of the screening to WB for clearance.

Step 3: Subproject Preparation and Documentation

80. After the Bank provides its comments, the PMOs will prepare safeguards instruments needed to address identified impacts. All subproject safeguards instruments shall be prepared by the DPWH and MMDA PMOs in collaboration with the relevant LGUs. It is the responsibility of the PMOs to obtain required GOP permits and clearances and ensure LGU cooperation and assistance in securing and implementing resettlement solutions where needed. Liaising with the Environmental Management Bureau (NCR) will be necessary. The PMOs are responsible for the quality and accuracy of the information in the safeguards plans and for the transmission of these documents to EMB-DENR (Environmental Management Bureau-Department of Environment and Natural Resources) and any other relevant GOP agencies.

58. Based on the screening matrix the following instruments will be required for each project activity.

Category A Full ESIA, ESMP, ECOP (RAP, Due diligence reports when necessary)

Category B ESIA, ESMP and ECOP (RAP, Due diligence reports when necessary)

Category C Project Description Report (refer to Annex A-2) with ESMP/ECOP

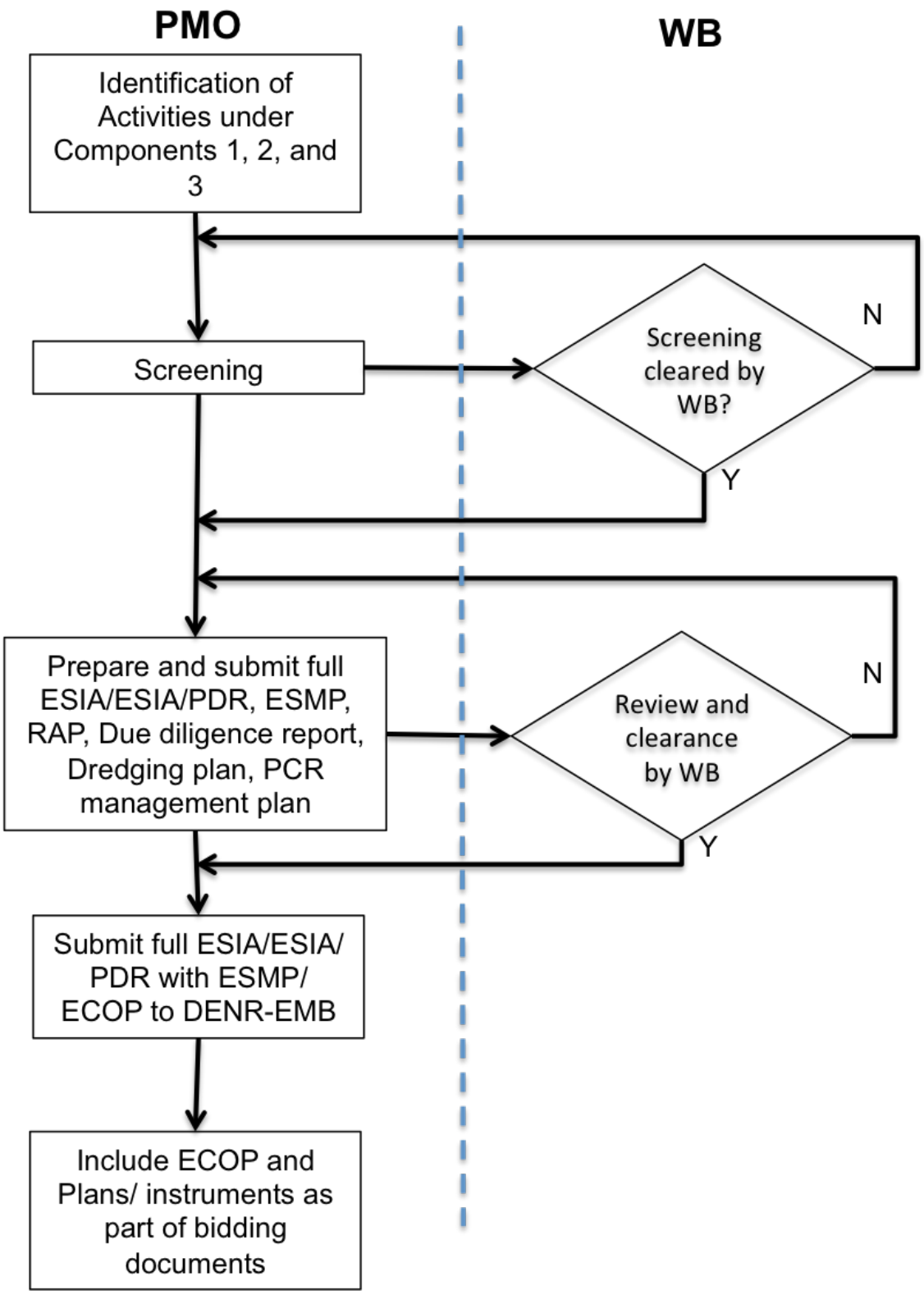


Figure 3: Project Safeguards Process

81. In the event that significant adverse environment and social impacts are identified during screening, a full ESIA becomes necessary for a new or existing pumping station. The full ESIA, where required, covers all potential issues including waste management, pollution control, resettlement, and considers appropriate alternative designs or mitigation measures. The DPWH may need to commission consultants to prepare a full ESIA. A sample ToR and recommended outline for a full ESIA is shown in Annex C.

82. Social impacts other than resettlement and land acquisition. Resettlement of ISFs is a significant impact given the situation in the waterways and pumping stations. Per Resettlement Policy Framework, impacts on individual PAPs will be assessed through socio-economic survey regardless of whether they need to relocate or not, as in the case of temporary economic displacement of vendors and small businesses. Economic impacts, expected to be minimal as the proposed project will pursue in-city or near city relocation, for resettled as well as host communities will be covered by a RAP. Sub-project ESIA will include assessment of other social impacts other than resettlement (e.g. temporary access issues and safety related issues in subproject construction, operation and maintenance). The sub-projects ECOP/ESMP will address these impacts.

83. Safeguard documents, including ESIA, ECOPs, ESMPs and RAPs, will be subject to consultation and disclosure in an accessible place, in a timely manner, in a form and language understandable to key stakeholders, prior to the finalization of the documents. Particular attention will be given to ensure project-affected persons have adequate time and ready access to draft documents before consultation takes place. Outputs from the technical assistance to the DENR under the GEF support on water quality monitoring will take safeguards considerations into account.

Step 4: Review and clearance of safeguards documents

84. The World Bank Task Team will review the documents, conduct a due diligence review as needed, and provide feedback (as necessary) to DPWH and MMDA leading to approval and clearance of the safeguard instruments. The social and environmental safeguards documents will be reviewed by the appropriate World Bank Task Team specialist, who will consult with the Regional Safeguards Secretariat as needed.

Step 5: Implementation - Supervision, Monitoring and Evaluation

85. Timely and effective monitoring is fundamental to ensure compliance, timely decision-making, to facilitate adaptive management and effective implementation of mitigating measures, and to adequately inform project evaluation and closure. Implementation of subproject safeguards instruments during project implementation is the responsibility of the PMOs with on-site support from the pumping stations and flood control units of DPWH and MMDA, the subproject LGUs, and communities. Costs associated with the government processes and the cost of monitoring shall be borne by the MMDA and DPWH. Their respective PMOs will employ monitoring teams, (which have been trained in application of the ESMF and RPF) to undertake safeguards compliance monitoring. PMO environmental

compliance monitoring reports will be prepared on a monthly basis and reported to the WB on a semi-annual basis.

Preparation of Social Safeguards

86. The objectives, principles, and project-specific requirements of the World Bank Policy on Involuntary Resettlement (OP 4.12) are set out in the Resettlement Policy Framework, which will guide preparation of subproject-specific Resettlement Action Plans (RAPs), due diligence on past resettlement in subprojects, or any related social development action plans, such as those developed to restore or enhance incomes and quality of life for project-affected people.

87. The DPWH and MMDA PMOs are responsible for providing necessary resources for all activities related to resettlement planning and implementation. Where subproject land acquisition or land access restrictions are unavoidable from the technical footprint of the project, DPWH PMO will prepare RAPs following guidance provided in the RPF. Where limited numbers of ISFs are affected (less than 200 individuals), Abbreviated Resettlement Action Plans (ARAP) may be prepared. RAP and ARAP cost estimates will make adequate provisions for contingencies. All resettlement-related costs including acquisition of land and fixed assets, compensation, and financial assistance to affected households will be included in the project cost.

88. **Scoping and Identification of new pumping station sites:** DPWH PMO in consultation with the MMDA and LGUs will scope proposed subproject sites for social impacts. A determination of the technical footprint area will be made which includes the pumping station site (existing or new), encroachments in waterways, potential social impacts on commerce and activities along access roads, any needs for additional electrical or other service lines into the site, etc. Given that the LGUs play a critical instrumental role in facilitation of resettlement, LGU involvement and cooperation is essential; and as noted, LGUs will lead in identification of resettlement sites, either existing or to be developed, which is a condition for inclusion of the pumping station in MMFMP.

89. **Screening of selected subprojects**: Working with the subproject LGU, the PMO will carry out screening based on subsequent field investigations following the scoping of candidate sites. Screening will assess the types and scale of impacts paying particular attention to land acquisition and loss of land or access to land, loss of fixed assets, and loss of access to land-based income streams. The number of persons marginally or severely affected and the types and number of vulnerable groups affected should be assessed to facilitate preparation of plans for physical resettlement and/or income restoration. The PMO-LGU teams will identify and estimate the types, degree, and scale of potential social impacts, primarily those related to land acquisition and the physical or economic displacement of people, both permanent and temporary. Remedies and solutions for identified impacts will be included in the budget and work program.

90. Once inclusion of the subproject is confirmed, the PMO will assist the LGU as needed to identify key stakeholders, including local community groups for their inclusion in initial public consultations. The consultations will: (a) provide information on the project, its benefits and impacts; (b) obtain feedback from the public; and (c) discuss participation and the roles of the community groups, NGOs and other key stakeholders going forward.

91. **Procedures for Land Acquisition:** Land acquisition will be carried through the use of public land to the extent possible or the purchase of land from private individuals. ***The specific procedures and conditions guiding land acquisition, valuation and compensation, and measures for resettlement and rehabilitation of project-affected people are specified in detail in the RPF***.

92. **Review and clearance of social safeguards documents.** The PMO will submit all social safeguards documents and plans for subprojects to the World Bank Task Team for review and clearance to ensure compliance with the RPF and ESMF. The World Bank may request revisions to these documents in the clearance process before the subproject is approved for implementation. The World Bank will ensure that all safeguard plans, including subproject RAPs, are disclosed at the InfoShop and obtain confirmation from DPWH that local disclosure of the same documents has been made on the PMO website and is available at locations accessible to stakeholders.

93. **Supervision of implementation, monitoring and evaluation.** The DPWH PMO will supervise and monitor social implementation of resettlement and related social impacts at the subproject sites to ensure that they are implemented in accordance with the RPF and ESMF. MMDA and HUDCC will provide overall oversight. Monthly safeguard implementation progress reports will be prepared by field staff and provided to the PMOs. The PMOs will submit semi-annual implementation monitoring reports to the World Bank. (The reporting frequency may be adjusted during implementation if needed.) In instances of non-compliance or where unanticipated implementation complexities arise, the PMO will inform and consult with the World Bank Task Team to agree on appropriate measures or remedial actions to be taken based on a time-bound schedule. The PMOs will be required to implement such measures within the agreed time-frame, failing which the WB will take additional measures, which could include suspending further disbursement, until the remedial measures are implemented to the satisfaction of World Bank.

94. Contractor's site access for civil works cannot take place until an appropriate resettlement instrument (RAP/ARAP) has been reviewed and cleared by the World Bank and implemented to a stage where ISFs and any other project-affected parties have been physically relocated from the land area needed, compensation has been paid, and other entitlements have been given or initiated, (such as where the entitlement involves training or other benefits which extend over time). The provision of rental subsidy to ISFs until their

houses are completed is considered an eligible action for the civil works to be allowed to start.

95. The implementation timetable for the resettlement instrument (RAP/ARAP) will be coordinated with the civil works schedule to ensure efficient implementation. Upon World Bank approval of the resettlement instrument and subsequent movement of subproject-affected people, the PMOs will issue a no objection letter to the contractor/concessionaire to allow construction activities to begin. As noted, entry on to private properties will not take place before project-affected parties have been given entitlements as per the RPF and the applicable resettlement instrument. Where land is acquired through market purchase, site access is given after conclusion of and in compliance with the terms of the sale agreement. In exceptional circumstances where eminent domain must be used, the terms of access are specified in a Writ of Possession given by the law courts. Where the land has already been acquired, subproject construction activities will begin only after DPWH provides a due diligence report which has been reviewed and approved by the Bank.

Public Consultation, Participation, and Disclosure

96. Information disclosure and public consultation are essential features in the preparation and implementation of subprojects. Awareness, input, and participation of project-affected people and relevant stakeholders contribute constructively to good planning and implementation. Timely stakeholder input can help manage or minimize adverse impacts and flag otherwise unanticipated impacts or issues to be addressed in land acquisition and environmental mitigation plans.

97. **Public Consultation** In addition to consultations undertaken with key stakeholders during project preparation, further public consultations will be carried out for the MMFMP with relevant stakeholders and government agencies at the Metro Manila level soon after the financing agreement is made between the GOP and the World Bank. These consultations are meant to inform and engage the public regarding the extent of project impacts and proposed mitigation measures. During implementation, as subprojects are brought forward, public consultations will be held with the assistance of relevant LGUs to inform and seek inputs from public and private stakeholders and any other interested parties about the type and duration of works, environmental impacts, and mitigation and management measures set out in the ESMF. The ESMF and other safeguards documents, as relevant and available, will be presented and discussed in detail during public consultations. At a minimum, consultations will be undertaken twice: first, at the initial stage where the project is presented to the public, and once again at the penultimate stage when subproject-specific environmental safeguard instruments have been prepared to seek and incorporate input from stakeholders. At the subproject level the PMOs will work with the LGUs to ensure adequate information is available to the public. Importantly, the public will be made aware of contact coordinates and procedures to be used if there are issues or grievances associated with subprojects for which redress or additional information is sought. All environmental safeguards documentation will

be made accessible to the public through the PMOs and participating LGU websites as well as on the World Bank InfoShop. The PMOs will keep records of public consultations, noting dates, locations, participants, salient issues raised, and responses to such issues.

98. **Public Consultation and Participation for Social Safeguards.** Public consultation and community participation are fundamental in ensuring a project's acceptability and establishing a constructive relationship between the community and the project. PMOs, with the assistance of the LGUs, will establish information and contact points to assist affected people with the resolution of issues which may arise during implementation and ensure sustained and constructive participation. The PMO social and resettlement team will provide relevant information to the community as early as possible, and will synchronize stakeholder meetings with ESMF consultations. Information provided will include: the purpose, nature scale of the project, social impacts and risks, and the timing and duration of the proposed resettlement and related activities. PMOs will ensure adequate documentation of consultations, needed to track issues or relevant developments and provide updates and feedback to affected people as needed during implementation. People will be informed of contact details and procedures to be used where grievances or other issues arise related to land acquisition, resettlement and entitlements. Consultation and community participation supplemented with information provision will be carried out as a continuous activity throughout the planning and implementation phases of subproject resettlement. Various consultations have been conducted, the minutes of which are attached as an Annex in the ESIA.

99. **Disclosure**: Environmental and social safeguard documentation to be disclosed initially by the World Bank InfoShop will include the key safeguard documents required for the review and approval of the World Bank Board of Executive Directors. These documents are: the MMFMP ESIA, ESMF, RPF, one RAP prepared in advance of Board presentation for people to be resettled from an obstruction in a section of the waterway serving the Vitas Pumping Station, a Due Diligence Report on people previously moved by the GOP from a waterway serving the Paco Pumping Station, and 3 due diligence reports for subprojects proposed for implementation during the first year where no resettlement has taken place in the past. Local disclosure will be initially be facilitated via the MMDA and DPWH websites. Going forward into implementation, PMO website information will be supplemented by public consultations, posters, booklets, and the media. Local disclosure should ensure information reached directly affected communities (including project-related workforce needs, where applicable). Participating LGUs will assist with provision of information on sub-projects at accessible locations.

100. During project implementation, subproject-specific documents and plans will be disclosed after review and clearance, as they become available via the PMOs and LGUs. These documents and plans include subproject Environmental Management Plans and all subproject-specific resettlement instruments (e.g. RAP, ARAP, DDR) or other social impact mitigation plans to be implemented. These documents are made publicly available at public

places accessible to project-affected-groups, NGOs, and other interested stakeholders through the DPWH project website, websites of participating LGUs, and the World Bank InfoShop. Hard copies will be made available at accessible sites. Where necessary, summaries of RAPs particularly the summary of losses and entitlements, will be made available in the form and language understandable to the PAPs. ***Public disclosure of individual names and entitlement to be given to specific individuals affected by land acquisition and resettlement will not be disclosed publically in respect of personal privacy.***

Capacity-building

101. DPWH and MMDA will need training and technical support to enable effective application of World Bank environmental and social safeguards. A detailed institutional capacity assessment for staffing and management of social and environmental safeguards policies will be conducted as a first priority activity upon establishment of the PMOs. Safeguards training will be provided to participating LGUs and contractors as subprojects are confirmed. Training needed for supporting agencies or organizations (government and non-government), such as NHA and SHFC and community housing groups will also be provided with focused training in advance of their active involvement. DPWH and MMDA specialists were given an initial orientation on World Bank safeguard policies in a one-day safeguards workshop with staff from World Bank Manila office held on January 22, 2015. However, more project-specific training will be needed to facilitate the DPWH and MMDA PMO teams and the LGUs in association with the clarification of roles and responsibilities, monitoring and reporting, as well as staffing capacity and the need for specialized expert consultants.

102. To this end, MMFMP will allocate funds for safeguards training. The World Bank will provide a training course, which will cover:

- An overview of WB Safeguard Policies, scoping, screening, and their application at key project stages.
- Environmental Assessment and preparation of EMPs.
- Land acquisition and resettlement.
- Good practice in public consultation
- Grievance Mechanisms and issues management.

Grievance Redress Mechanism

103. A project grievance redress mechanism (GRM) is necessary for addressing legitimate concerns of affected individuals and groups who raise issues of concern during project implementation. Effective management of grievances is especially important in the context of resettlement, where issues concerning entitlements may arise. DPWH has an established grievance redress mechanism and MMFMP GRM will build on this mechanism.

104. As part of its Citizens' Charter, DPWH has a functioning feedback handling system composed of two components: (a) Feedback Handling, a system that receives, sorts and resolves feedbacks on DPWH projects and, (b) Civil Society Organization (CSO) accreditation to serve as partners and/or observers in all stages of project development cycle (identification, preparation, budgeting, procurement, implementation, operations, and post evaluation) and in other areas of mutual interest. The Feedback Handling Component is managed by the Stakeholders Relations Service (SRS) unit headed by a division head and staffed by six action officers manning the system during office hours. As it is a 24-hour service, one action officer is designated each night. The SRS has two hotlines, a text messaging system (2920), an email account and social media accounts (Facebook and Twitter). It also accommodates walk-in complainants in its office. Feedbacks/complaints are farmed out by Action Officers to concerned units/divisions in the agency and actions are monitored by platform officers (one officer per platform, i.e. email, Facebook, etc.). Serious complaints (i.e. allegation of fraud and corruption) are usually forwarded to high ranking officials (undersecretary level). There are established service standards.

105. Building on the DPWH GRM described above, the Project will establish an information and grievance management function or a Public Complaints Unit to address and resolve any project-related grievances from project-affected people or other stakeholders and members of the public. It will be managed with the support of the social and environmental team in the PMO. Information materials will be published and shared with the public especially the communities surrounding the pumping stations to be rehabilitated or constructed as well as the displaced/resettled families. The GRM information materials will form part of the information, education and communication (IEC) kits to be distributed during public consultations and community meetings and capacity-building of project staff.

106. The MMFMP GRM will be implemented based on the following principles:

- Simplicity: procedures in filing complaints is understandable to users and easy to recall.
- Accessibility: filing complaints is easy through means that are commonly used by stakeholders, especially by the project-affected people.
- Transparency: information about the system is made widely available to all stakeholders and the general public.
- Timeliness: grievances are attended to and resolved in a timely manner.
- Fairness: feedback or complaints are validated thoroughly and subjects of complaints are given due process and opportunities for appeal.
- Confidentiality: the identity of complainants remains confidential.

107. To achieve these principles, the GRM will be set up with the following features:

- Multiple Uptake Points: In addition to access through the Community Contact, complainants will be provided with multiple channels to submit their complaints. The existing DPWH SRS mechanisms (electronic messages, telephone hotline, SMS, personal delivery/walk-in, social media accounts) will be utilized.

- Timely resolution at the lowest possible level: The project will strive to attend to complaints in a timely manner. To do this, it will designate a Community Contact at the sub-project (pumping station) level. In addressing and resolving complaints, the project will build on existing mechanisms in the community (community leaders, barangay officials, barangay justice system, etc.). It is only when the complaint is not resolved at this level that the complaint goes to the next level of the GRM for resolution.

- System for receiving, sorting, verifying, and tracking. Building on the current SRS system, a simple MMFMP system will be developed to facilitate effective management of complaints to guide the PMO, particularly the Public Complaints Unit, on the steps and arrangements from receiving, sorting, verifying, acting and tracking complaints. These will be detailed out in the project operational manual. Complaints will be categorized and actions on the complaints will be implemented and documented. The project will maintain a database documenting the salient details of complaints, including the dates they were received and when and what actions were taken. The SRS These documents will be available to the external monitoring team and the World Bank. The project will monitor complaints and coordinate with the concerned LGUs and relevant government agencies as needed to resolve them adequately and expeditiously. DPWH will keep the World Bank Task Team informed about any significant complaints and the steps taken to resolve them.

- Disclosure and ease of access: The salient features of the GRM will be publically disclosed so that people are aware of where and how complaints will be managed. The Community Contact person assigned to the sub-project will further ensure that people in the sub-project's area of influence are aware of grievance management arrangements. Ideally complaints should be written, but if received verbally, the Community Contact person will ensure written documentation is made and that the complaint is dated and recorded.

- Publicly disclosed and easily accessible. The complaints/grievance redress arrangements will be publically disclosed so that people are aware of where and how complaints will be managed. The GRM contact person assigned to the subproject will further ensure that people in the subproject's area of influence are aware of grievance management arrangements. Ideally complaints should be written, but if received

verbally, the subproject contact person will ensure written documentation is made and that the complaint is dated and recorded.

108. It is also of note that, "Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns.

109. Project-affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after these concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond.

110. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS): www.worldbank.org/grs ; for information on how to submit complaints to the World Bank Inspection Panel: www.inspectionpanel.org.

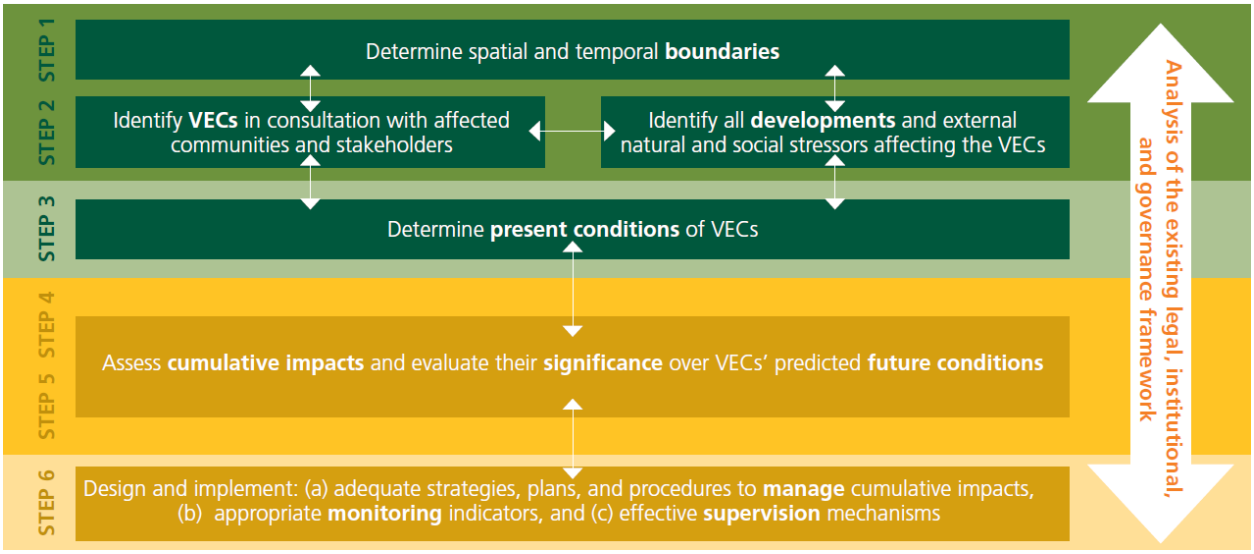
Gender Development

111. MMFMP is gender neutral: both women and men are involved in its development and as beneficiaries as far as integrated flood and solid waste management are concerned. To determine actual representation of women in the project's activities, gender disaggregated attendance sheets shall be used. Minutes of meetings/activities will also be reviewed (randomly) to see if gender issues are discussed and resolved.

112. Baseline surveys needed to design and implement resettlement and income restoration plans for ISFs affected by the project will pay special attention to demographic characteristics and economic survival strategies of informal settlers, including women and children. Income restoration interventions to redress loss of income streams or to improve incomes of ISFs will include specific actions for women and children. Educational and skills enhancement training provided as an entitlement to two members of informal settler families will ensure at least one female family member is given access.

113. Gender-related activities will be addressed under components 2 and 3. Under component 2, among informal waste pickers, many are women (and their children) because they lack alternative livelihood options and may face specific hardships (e.g. as single parents and female heads of household). On the other hand, other jobs in the solid waste sector are typically the domain of men (e.g. more formal jobs as waste collectors, whether through handcarts or municipal garbage trucks). Programs to train and support resettled women with alternative livelihood activities will also be included under component 3. The project will take these gender dimensions fully into consideration when designing specific actions.

114. Cumulative Impact Assessment (CIA). A terms of reference of rapid CIA will be completed as part of Phase 1 and implemented in the second phase of MMFMP. There are a total of 50+ pumping stations in Metro Manila. The CIA will follow the six step process as outlined in the Good Practice Handbook on Cumulative Impact Assessment and Management of the IFC.



115. A terms of reference for the conduct of this CIA is included (Annex G) An initial screening of Valuable Environmental Components (VECs) and an initial inventory of projects planned and ongoing in Manila for 2010-2021 are presented in Tables 6 and 7. Consultants to be hired under the TOR for the CIA will do a proper analysis of the VECs.

Table 6: Preliminary VECs

	Valuable Environmental Components (Potential VECs)	**Indicator**
1	Community Health	Incidence of Diarrhea in Children
2	Water Quality	Improvement in Dissolved Oxygen Levels
3	Community Safety	Incidence of Floods
4	Standard of Living	May be difficult to measure
5	Aesthetic value of waterways	Metric to be determined

Table 7: Preliminary List of Planned and Ongoing Projects 2010-2021

	Projects
1	Metro Manila Flood Management Project
2	Oplan Likas
3	Manila Wastewater Management Project (MWMP)
4	GoP dredging program (DPWH)
5	Laguna Lakeshore Dike/Expressway
6	ADB Solid Waste Management Project
7	Manila Bay Clean up Initiative (Mandamus Agencies)
8	Wastewater Treatment Facilities (MWSI and MWCI)

116. Institutions that may need to participate in the CIA are the following; DPWH, MMDA, LLDA, LGUs, Water Concessionaires (MWCI and MWSI), DILG and CSOs. The CIA would take about 5 months to complete and will cost approximately USD 200,000. The TOR for the conduct of the CIA, in Annex G, provides a more detailed description of the scope of work required.

ANNEXES

ANNEX A: SCREENING MATRIX

Environmental and Social Safeguards Screening Matrix

Metro Manila Flood Management Project

Name of Subproject: _____

Location: _____

This matrix is to be used together with the Environmental Code of Practice (ECOP). The ECOP is intended to cover all the typical and repeating impacts and mitigation measures in the activities of the project. This screening matrix identifies other impacts not covered by the ECOPs, but may potentially occur in some sites e.g. pumping stations / sites.

When considering the activities and location of a pumping station and other project activities, fill up the following matrix based on the on-site conditions and activities in the proposed site. Having multiple issues in one site does not necessarily mean that the site is unsuitable (specifically for new pumping stations). They do indicate a real risk of causing undesirable adverse environmental and social effects, and that more substantial environmental and/or social safeguards instruments may be required to adequately avoid, mitigate or manage potential effects. All activities under Components 1, 2 and 3, in each drainage area are screened and assessed as one sub-project activity.

		If Yes	Comments
1	Will dredging of waterways be done?	Prepare a dredging management plan which includes sampling of dredge material for presence of toxic and hazardous content. Disposal options for the dredge material will depend on the analysis of the sludge. Need to indicate exact site for disposal of dredged material.	Refer to Schedule 3 of RA 6969 for threshold levels of toxic and hazardous content of sludge/dredge material. If based on TCLP test, dredged material contains toxic and hazardous materials, PMO to dispose these wastes to Clark Sanitary Landfill.
2	Will there be expansion of current structures, e.g. expansion of the existing pumping station structure or installation of new additional structures?	Consult with WB safeguards staff if an EIA is needed.	ECOPS and ESMP will apply. Depending on the magnitude of the works, an EIA may be

			required.
3	Will substantial solid waste be generated?	Ensure that the transport and disposal of the solid waste is compliant with RA 9003.	Includes aquatic weeds (e.g. water hyacinth)
4	Will the activity dispose of solid waste in a site other than the following: Navotas Sanitary landfill Montalban Solid Waste Disposal Facility	Conduct a due diligence audit of the disposal site and ensure the following: Only disposal sites with proper design and leachate treatment will be considered.	
5	Will there be dismantling of equipment containing PCBs (e.g. transformers)?	Prepare a PCB management plan.	Contact DENR-EMB (Mr. Edwin Navaluna)
6	Will the project affect any Physical Cultural Resources or sites of historical and cultural significance within the impact area?	Prepare a PCR management Plan	
7	Will there be lands to be acquired for this rehabilitation work, temporarily or permanently?	Refer to the RPF	
8	Will there be properties and other assets that will be affected or damaged?	Refer to the RPF	
9	Will there be people that need to resettle to give way to the rehabilitation?	Refer to the RPF. Prepare a RAP.	
10	Will there be economic displacement due to the rehabilitation work?	Refer to the ESMF/RPF	
11	Has there been resettlement of PAPs carried out under a GoP program (e.g. Oplan Likas) in the vicinity of the Pumping station?	Refer to the RPF	

In general these are the criteria for categorization of the project activities:

Category A The activity is likely to have significant adverse environmental and social impacts that are sensitive, diverse, or unprecedented.

- Scope of impacts is large in terms of area; and
- Impacts are difficult to mitigate e.g. (when substantial dredging is required)

Instrument: Full ESIA, ESMP/ECOP

Category B The activity has potential adverse environmental impacts on human populations or environmentally important areas – which are less adverse than those of Category A projects. These impacts are site-specific. Few if any of them are irreversible and in most cases, mitigation measures can be designed more readily than for Category A projects.

- Impacts are manageable to mitigate
- Impacts are generally reversible

Instrument: ESIA, ESMP/ECOP

Category C — The activity is likely to have minimal or no adverse environmental impacts. Beyond screening and ECOP, no further EA action is required for a Category C project under WB OP 4.01 but the subproject will be required to submit a Project Description report (Annex A-2) with ESMP/ECOP to DENR-EMB-NCR in securing the Certificate of Non-Coverage (CNC).

The proper categorization is left to the judgment of the PMO considering the guidelines above. The final objective of the categorization is to ensure that all social and environmental impacts are avoided, minimized or properly mitigated.

The results of this screening will have to be cleared by the DPWH/MMDA and the WB Task Team.

The final objective of the screening matrix is to ensure that all social and environmental impacts are avoided, minimized or properly mitigated.

Annex A-1

Template of IEE Checklist Report to be submitted to DENR-EMB in securing the ECC

INITIAL ENVIRONMENTAL EXAMINATION (IEE) CHECKLIST REPORT FORM

for

IRRIGATION / FLOOD CONTROL/ MINOR DAM PROJECTS

This IEE Checklist Report Form shall be used for proposed **IRRIGATION / FLOOD CONTROL/ MINOR DAM PROJECTS** required an IEE Report / IEE Checklist for ECC Application.

This IEE Checklist Report Form shall be submitted along with the following documents:

- Proof of Compatibility with the existing Land Use Plan
- Proof of Authority over the Project Site
- Accountability Statements of Proponent (see attached form) and the Preparer (if any, following Annexes 2-22 of Revised Procedural Manual for DAO 2003-30)
- Photographs or plates/vicinity map of the project site showing impact areas and affected areas and communities
- Duly Accomplished Project Environmental Monitoring & Audit Prioritization Scheme (PEMAPS) Questionnaire (see Annex 2-7d of Revised Procedural Manual for DAO 2003-30)

(No other documents shall be required as pre-requisite to ECC applications per DENR MC 2010-14.)

Read the questions carefully and write the required information on the spaces provided or otherwise check (✓) the appropriate boxes ☐. Boxes with check marks ☑ are mandatory requirements. Use additional sheets if necessary and indicate this in the appropriate space.

Project proponents are strongly **discouraged** from engaging the services of consultants/facilitators/preparers to accomplish/fill-up the IEE Checklist Report Form. The Report Forms have been designed to be user-friendly.

Furthermore, the EMB Regional Office is required to complete the processing of an ECC application using the IEE Checklist Report within twenty (20) working days upon receipt of duly-accomplished forms with complete attachments.

Misleading or erroneous answers are grounds for legal action and/or denial of ECC issuance.

PROJECT FACT SHEET

Name of the Project		
Proponent Name		
Proponent Address		
Proponent Means of Contact	**Name:**	**Designation:**
	Landline No.	**Fax No.**
	Mobile No.	**Email:**

PROJECT DESCRIPTION

Please check project type and indicate size			
✓	**Project Type**	**Actual Project Size**	**Project Size Parameter**
	Impounding System or Flood Control Project		reservoir flooded area (hectare) or water storage capacity (m^3)
	Irrigation System (Distribution System Only)		service area (hectare)
	Minor Dam		reservoir flooded area (hectare) or water storage capacity (m^3)

Other Description Details:

_____ ___
_____ _____ ___
_____ ___
_____ ___

I.1 PROJECT LOCATION AND AREA:

Street/Sitio/Barangay	**Zone/Classification** (i.e., industrial, residential)	
City/Municipality	**Province**	**Region**
Total Project Land Area	**Total Building Footprint Area**	

See attached vicinity map/s and photographs of the project site and site development/layout plan.

Geographic coordinates of the project area (Preferably use PRS 92 datum; otherwise, specify datum used).

Perimeter/Boundary points (based on OCT/TCT/etc.)	Longitude	Latitude

I.2 PROJECT COMPONENTS

Facilities	No. of Units	Area (sq/M)/ Capacity	Specifications/Description/ Remarks
1. Dam			
2. Diversion headworks (i.e., diversion weir, canal head regulator, etc.)			
3. Impounding System			
4. Irrigation canal system			
5. Drainage canals			
6. Access roads / Farm to market roads (if applicable)			
7. Post harvest facility (if applicable)			
8. Others, specify: _____ _____			

Use additional sheets, if necessary

I.3 UTILITIES/REQUIREMENTS (Operation Phase):

Utilities	Source	Estimated Demand/Consumption
Power/Electricity (Total)		KWh
Power/Electricity (From Renewable Energy Sources)		KWh
Water (Total) (Fill-up table below if water is not obtained from the local water utility)		m^3/day
Water (Rainwater Collection System)		m^3/day

Water Source

☐ ground water ☐ well ☐ spring ☐ others: _____

☐ surface water ☐ river ☐ lake ☐ others: _____

Location of water source

_____

(Sitio/Zone, Barangay, Municipality/City, Province, Region)

Energy/Water Efficiency

Utilities	Estimated Savings	Proposed Efficiency/Conservation Measures
Power/Electricity	KWh	
Water	m^3/day	

I.4 MANPOWER

a. Construction Phase

Manpower Requirement	Expertise/Skills	Total

b. Operation Phase

Manpower Requirement	Expertise/Skills	Total

I.5 INDICATIVE PROJECT COST

Project Cost (PhP): _____

II. ENVIRONMENTAL IMPACT AND MANAGEMENT PLAN

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/ Implementation	Cost of Mitigation/ Monitoring
LAND				
☑ Consistency with land use	Current land use w/in 1km radius (as per zoning ordinance): ☐ Residential ☐ Commercial/ Institutional ☐ Industrial ☐ Agricultural/ Recreational ☐ Protected Areas ☐ Others, specify _____ Actual land uses w/in 1km radius: ☐ Residential ☐ Commercial/ Institutional ☐ Industrial ☐ Agricultural/ Recreational ☐ Protected Areas ☐ Others, specify _____	☑ See attached proof of compatibility with land use		
☐ Disturbance to wildlife due to vegetation clearing	Existing vegetation in the area: ☐ Forestland ☐ Marshland ☐ Grassland ☐ Mangrove ☐ Wetland ☐ Others, specify _____	☑ Comply with conditions of DENR/LGU SLUP, Tree Cutting Permit, ROW, PCA Permit ☑ Limit land clearing as much as possible ☑ Provide temporary fencing for vegetation that will be retained ☑ Promote restoration of damaged or destroyed vegetation where possible (e.g., tree planting)	☑ Annual inspection of area replanted/ re-vegetated	☑ Cost integrated in the construction/ operation cost

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/ Implementation	Cost of Mitigation/ Monitoring
☐ Change in surface landform/ topographyterrain/ slope ☐ Soil Erosion	Slope: ☐ flat (0-3%) ☐ gently sloping to rolling (3-18%) ☐ steep (>18%) Is the project site located in an area identified by MGB/ PAG-ASA/ PHIVOLCS as hazard prone? ☐ Yes ☐ No	☐ Provide erosion control and slope protection measures ☐ Designate a Spoils Storage Area, with topsoil set aside for later use and allow maximum re-use of spoils ☐ Construct during dry season ☐ Stabilize embankment with grasses or other soil cover ☐ Others, specify _____ ☐ Comply with DENR Administrative Order No. 2003-30 and DENR Administrative Order No. 2000-28, Implementing Guidelines on Engineering Geological and Geo-hazard Assessment (EGGA).	☐ Regular inspection of slope protection measures in erosion-prone areas ☐ Regular inspection for new eroded areas near the site ☐ Others, specify _____	☐ Slope/ Erosion Control Cost: _____ ☐ Others, specify _____
☑ Soil/Land contamination due to improper solid waste disposal	Existing soil type in the area: ☐ sandy ☐ clay ☐ sandy-loam ☐ Others, specify _____	☑ Implement the Ecological Solid Waste Management Plan (ESWMP) ☐ Set up temporary fence around the construction area ☑ Implement re-use and recycling of waste materials ☑ Implement proper segregation, collection and disposal of domestic wastes in designated areas ☐ Implement proper collection, labeling and storage of hazardous waste ☑ Provide receptacles / bins for solid wastes ☐ Coordinate with the municipal / city waste collectors ☐ Engage third party company for waste collection	☑ Daily inspection of waste/recycling bins for segregation ☑ Daily inspection for presence of mixed garbage in the facility ☑ Weekly inspection of waste accumulated ☐ Others, specify _____	☑ Cost integrated in the construction/ operation cost

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/ Implementation	Cost of Mitigation/ Monitoring
		☐ Others, specify _____		
WATER				
☐ Increased siltation due to project activities ☐ Water quality degradation ☐ Others, specify _____	Specify nearest water body: _____ Distance to nearest water body: ☐ 0 to less than 0.5 km ☐ 0.5 to 1 km ☐ More than 1 km If nearest water body is fresh water, specify classification: ☐ AA ☐ A ☐ B ☐ C ☐ D If nearest water body is coastal or marine water, specify classification: ☐ SA ☐ SB ☐ SC ☐ SD	☑ Set up proper and adequate sanitary facilities ☐ Strictly require the contractor and its workers to observe proper waste disposal and proper sanitation ☑ Strictly observe proper waste handling and disposal ☐ Provide wastewater treatment facility (e.g., septic tank, oil and water separator, etc.) ☐ Set up silt trap/settling ponds to minimize downstream siltation ☐ Others, specify _____	Regular (ocular) inspection of: ☐ Drainage/canal systems ☐ Water treatment facility (i.e., grease trap, septic tank, etc. Regular (ocular) inspection of water body for: ☐ Turbidity and/or silted condition ☐ Floating wastes or debris	☑ Cost integrated in the construction/ operation cost

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/ Implementation	Cost of Mitigation/ Monitoring
	Current Water Use: ☐ **Fishery** ☐ **Tourist Zone / Park** ☐ **Recreational** ☐ **Industrial** ☐ **Agricultural** Distance of project area to the nearest well used: ☐ 0 to less than 0.5 km ☐ 0.5 to 1 km ☐ More than 1 km Use of nearest well: ☐ Drinking/Domestic ☐ Industrial ☐ Agricultural			
☐ Competition in water use ☐ Depletion of water resources	Size of population using proposed water source: ☐ ≤ 1,000 persons ☐ >1,000 and ≤ 5,000 persons ☐ >5,000 persons Available/nearest water source. ☐ Deepwell ☐ Water district/LGU ☐ Surface water ☐ Others, specify _____	☐ **Implement rainwater harvesting and similar measures as an alternative source of water** ☑ **Observe water conservation measures** ☐ **Carefully select project site to avoid disruption of traditional water uses** ☑ **Obtain Water Permit from NWRB** ☑ **Improve efficiency of water supply and distribution system** ☐ **Implement community ponds and similar measures as alternative water source and options for fish cultivation** ☑ **Increase, when practical, storage capacities of water supply structures**	☑ Regular monitoring for presence/absence of complaints ☑ Regular coordination with concerned agencies ☑ Regular monitoring for occurrences of water shortages ☐ Others, specify _____	☑ Cost integrated in the construction/ operation cost

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/ Implementation	Cost of Mitigation/ Monitoring
		for resilience to greater climate variations and extremes ☐ Use drought resistant species which require less water input and hence have less impact on water tables ☑ Modify irrigation techniques, including amount, timing or technology ☑ Improve water management to prevent water logging, erosion and leaching ☐ Modify crop calendars and/or implement seasonal climate forecasting (e.g., timing or location of cropping activities) ☐ Others, specify _____		
☐ Increased occurrence of flooding	Is the project site located in an area identified by MGB/ PAG-ASA as flood prone? ☐ Yes ☐ No	☐ Use appropriate design for project facilities ☐ Implement appropriate drainage system ☐ Regularly remove debris and other materials that may obstruct water flow ☐ Use appropriate technology (e.g., raised hand-pumps) to protect drinking water from flood contamination ☐ Others, specify _____	☑ Regular monitoring for presence/absence of complaints ☑ Regular coordination with concerned agencies ☑ Regular monitor of increased frequency of flooding ☐ Others, specify _____	☑ Cost integrated in the construction/ operation cost

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/ Implementation	Cost of Mitigation/ Monitoring
AIR / NOISE				
Air quality degradation	Distance to nearest community: ☐ 0 to less than 0.5 km ☐ 0.5 to 1 km ☐ More than 1 km	☐ Properly operate and maintain all emission sources (e.g., vehicles, pumps, generator, etc.) ☐ Install, when applicable, the appropriate air pollution control device/s ☐ Strictly enforce good housekeeping practices ☐ Control vehicle speed to lessen suspension of road dust ☐ Conduct water spraying to suppress dust sources and minimize discomfort to nearby residents ☐ Use covered vehicles to deliver materials that may generate dust ☐ Others, specify _____	☑ Regular monitoring for presence/absence of complaints Regular (ocular) inspection of: ☐ Absence of white or black smoke from vehicles, generator, etc. ☐ Presence of truck cover during deliveries	☑ Cost integrated in the construction/ operation cost
☐ Nuisance due to noise generation	Distance to nearest community: ☐ 0 to less than 0.5 km ☐ 0.5 to 1 km ☐ More than 1 km	☐ Properly operate and maintain all noise sources (e.g., vehicles, pumps, generator, etc.) ☐ Install, when applicable, the appropriate noise control device/s (e.g., mufflers, silencer, sound barriers, etc.) ☐ Implement appropriate operating hours ☐ Provide adequate buffer and/or planting of trees ☐ Others, specify _____	☑ Regular monitoring for presence/absence of complaints ☐ Regular monitoring of buffer zones ☐ Quarterly monitoring of noise level	☑ Cost integrated in the construction/ operation cost

Possible Environmental/ Social Impacts	Baseline Environment	Preventive/ Mitigating Measures	Monitoring Parameters/ Implementation	Cost of Mitigation/ Monitoring
PEOPLE				
☐ Displacement of residents in the project site and within its vicinity ☐ Displacement of Indigenous Peoples ☐ Enhanced employment and/or livelihood opportunities ☐ Reduced employment and/or livelihood opportunities ☐ Increased revenues for LGU ☐ Disruption/Competition in delivery of public services (e.g., education, peace and order, etc.) ☐ Enhanced delivery of public services (e.g., education, peace and order, etc.) ☐ Increase in traffic volume and worsening of traffic flow	Size of population of host barangay: ☐ ≤ 1,000 persons ☐ >1,000 and ≤ 5,000 persons ☐ >5,000 persons Classification of host barangay: ☐ Urban ☐ Rural Available services within/near the host barangay: ☐ Schools (e.g., elementary, high school, college) ☐ Health facilities (e.g., clinics, hospitals, etc.) ☐ Peace and order (e.g., police outpost, Brgy. Tanod, etc.) ☐ Recreation and sports facilities ☐ Others, specify _____	☐ Provide relocation/disturbance compensation packages ☑ Prioritize local residents for employment ☑ Promptly pay local taxes and other financial obligations ☑ Regular coordination with LGU ☐ Conduct prior consultation and coordination to minimize disruption of daily domestic activities and to ensure respect for IP rights and cultural practices ☐ Ensure participation of IPs in consultations and dialogues ☐ Provide appropriate traffic/warning signs, lighting, etc ☐ Others, specify _____	☑ Regular monitoring for presence/absence of complaints ☑ Regular coordination with LGU ☐ Others, specify _____	☑ Cost integrated in the construction/operation cost
☐ Impacts on community health and safety		☑ Regularly coordinate with LGU ☐ Provide appropriate warning signs, lighting and barricades, whenever practicable	☑ Regular monitoring for presence/absence of complaints	☑ Cost integrated in the construction/ operation cost

Possible Environmental/ Social Impacts	Baseline Environment	Preventive/ Mitigating Measures	Monitoring Parameters/ Implementation	Cost of Mitigation/ Monitoring
☐ Others, specify _____		☑ Observe proper housekeeping ☐ Provide on-site medical services for any emergency. ☐ Participate in public awareness programs on health and safety ☐ Implement appropriate safety programs for both community and workers ☐ Others, specify _____	☑ Regular coordination with LGU ☑ Regular submission of reports to concerned agency ☐ Others, specify _____	

III. ABANDONMENT / DECOMMISSIONING / REHABILITATION POLICIES AND GENERIC GUIDELINE
(if Applicable)

Project Life or Service: _____ years

Provide description of the Abandonment activities, such as dismantling and waste disposal.

_____
_____
_____
_____
_____

IV. INSTITUTIONAL PLAN FOR EMP IMPLEMENTATION

Organization Chart:

SWORN STATEMENT OF ACCOUNTABILITY OF THE PROPONENT

This is to certify that all the information and commitments in this Initial Environmental Examination (IEE) Checklist Report are accurate and complete to the best of my knowledge.

By the authority vested in me by the _____*(Company Name)*_____ as ___*(Position/Designation)*_____, I hereby commit to ensure implementation of all commitments, mitigating measures and monitoring requirements indicated in this IEE Checklist Report as well as the following:

- Conform to pertinent provisions of applicable environmental laws e.g., R.A. No. 6969 (*Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990*), R.A. No. 9003 (*Ecological Solid Waste Management Act of 2000*), R.A. No. 9275 (*Philippine Clean Water Act of 2004*), and R.A. No. 8749 (*Philippine Clean Air Act of 1999*).
- Abide and conform to LGU development plan and guidelines.
- Promptly pay local taxes and other financial obligations.
- Regularly submit reports to concerned agencies.

I hereby bind myself to answer any penalty that may be imposed arising from any misrepresentation or failure to state material information in this IEE Checklist.

In witness whereof, I hereby set my hand this ____ day of _____ at _____.

_____
NAME OF PROPONENT HEAD

_____
Signature

_____
Position

_____
Company Name

SUBSCRIBED AND SWORN TO before me this _____ day of _____ 201__, affiant exhibiting his/her Community Tax Certificate No. _____ issued at _____ on _____.

Doc No. _____
Page No. _____
Book No. _____
Series of _____

Annex A-2

Template of Project Description Report (Sub-Project Vitas Pumping Station) for securing the Certificate of Non-Coverage from DENR-EMB

<table>
<tr><td>1. Name of Project</td><td colspan="3">VITAS PUMPING STATION</td></tr>
<tr><td>2. Project Location</td><td colspan="3"><table>
<tr><td colspan="2">Street/Sitio/Barangay
Honorio Lopez Blvd., Tondo</td><td>Zone/Classification (i.e. industrial, residential)
Utility Zone</td></tr>
<tr><td>City/Municipality
Manila</td><td>Province
Metro Manila</td><td>Region
NCR</td></tr>
</table></td></tr>
<tr><td>3. Proponent Name</td><td colspan="3">METROPOLITAN MANILA DEVELOPMENT AUTHORITY</td></tr>
<tr><td>4. Proponent Address</td><td colspan="3">EDSA corner Orense St., Guadalupe Nuevo, Makati City</td></tr>
<tr><td>5. Contact Person</td><td colspan="3"><table>
<tr><td>Name
Corazon T. Jimenez</td><td>Designation
General Manager</td></tr>
</table></td></tr>
<tr><td>6. Proponent Means of Contact</td><td colspan="3"><table>
<tr><td>Landline No
882-0927</td><td>Fax No</td></tr>
<tr><td>Mobile No</td><td>Email</td></tr>
</table></td></tr>
<tr><td>7. Project Type/ Undertaking</td><td colspan="3">Pumping station for flood control</td></tr>
<tr><td>8. Project Size</td><td colspan="3">Fill up only relevant parameters<table>
<tr><td>Capacity/Others (i.e. MW, m3, heads) 32 cum/sec (pumping capacity)</td><td>Space Allocation/Area (i.e. km, ha, sqm)
578 ha (drainage area)</td></tr>
<tr><td>Quantity to be Processed (i.e. MT of raw material) NA</td><td>Others:</td></tr>
<tr><td>Production Rate (i.e. MT/year) NA</td><td></td></tr>
</table></td></tr>
<tr><td>9. Description of Project Activities (i.e. during pre-construction, operation and abandonment)</td><td colspan="3">Vitas Pumping Station is serving several barangays in the Tondo District in the City of Manila. The total catchment area is about 578 hectares. The pumping station was constructed in September 1994 and was completed in December 1997. During the rainy season, the pumping station collected about 5 cu.m. of garbage per day while during the dry season the average garbage collected is 1 cu.m per day. Collected garbage is disposed to the Navotas Sanitary Landfill. The proposed rehabilitation and upgrading works are described in the attached Project Description.</td></tr>
<tr><td></td><td colspan="2">Prepared/Submitted by:</td><td>Concurred/Approved by:

Corazon T. Jimenez

General Manager</td></tr>
<tr><td></td><td colspan="2">Signature over Printed Name</td><td>Owner’s Proponent’s Signature over Printed Name</td></tr>
</table>

PROJECT DESCRIPTION

1. BASIC PROJECT INFORMATION

1.1 Project Information

Name of Project: **VITAS PUMPING STATION**

Location: Honorio Lopez Blvd, Tondo, Manila, Metro Manila

Nature of Project: Rehabilitation and upgrading of Vitas Pumping Station

Size/Scale: Drainage Area – 578 hectares

1.2 Proponent Profile

Name: Metropolitan Manila Development Authority

Address: EDSA corner Orense St., Guadalupe Nuevo, Makati City

Authorized Signatory/Representative to Apply for CNC: Corazon T. Jimenez - General Manager

Contact Details: EDSA corner Orense St., Guadalupe Nuevo, Makati City
Telephone: 882-0927

2. PROJECT DESCRIPTION

2.1 Project Location and Area

Vitas Pumping Station is serving several barangays in the Tondo District in the City of Manila. The total catchment area is about 578 hectares as shown in Figure 1. Other information pertinent to the catchment area is show in Table 1.

Table 1: Catchment Area of Vitas Pumping Station

1	Type	Major pump Station	
2	Location	Tondo, Manila	
3	Total drainage area (hectares)	578	
4	Total population in the drainage area	From MMDA	
5	Total length of drainage lateral (m)	98,000	
6	Total length of drainage mains (m)	3,257.80	
7	Total length of open waterways (m)	10,786.40	
8	Volume to be desilted (m^3)		
	Lateral	Mains	Open waterways
	138,741.64	6,985.31	237,440.46

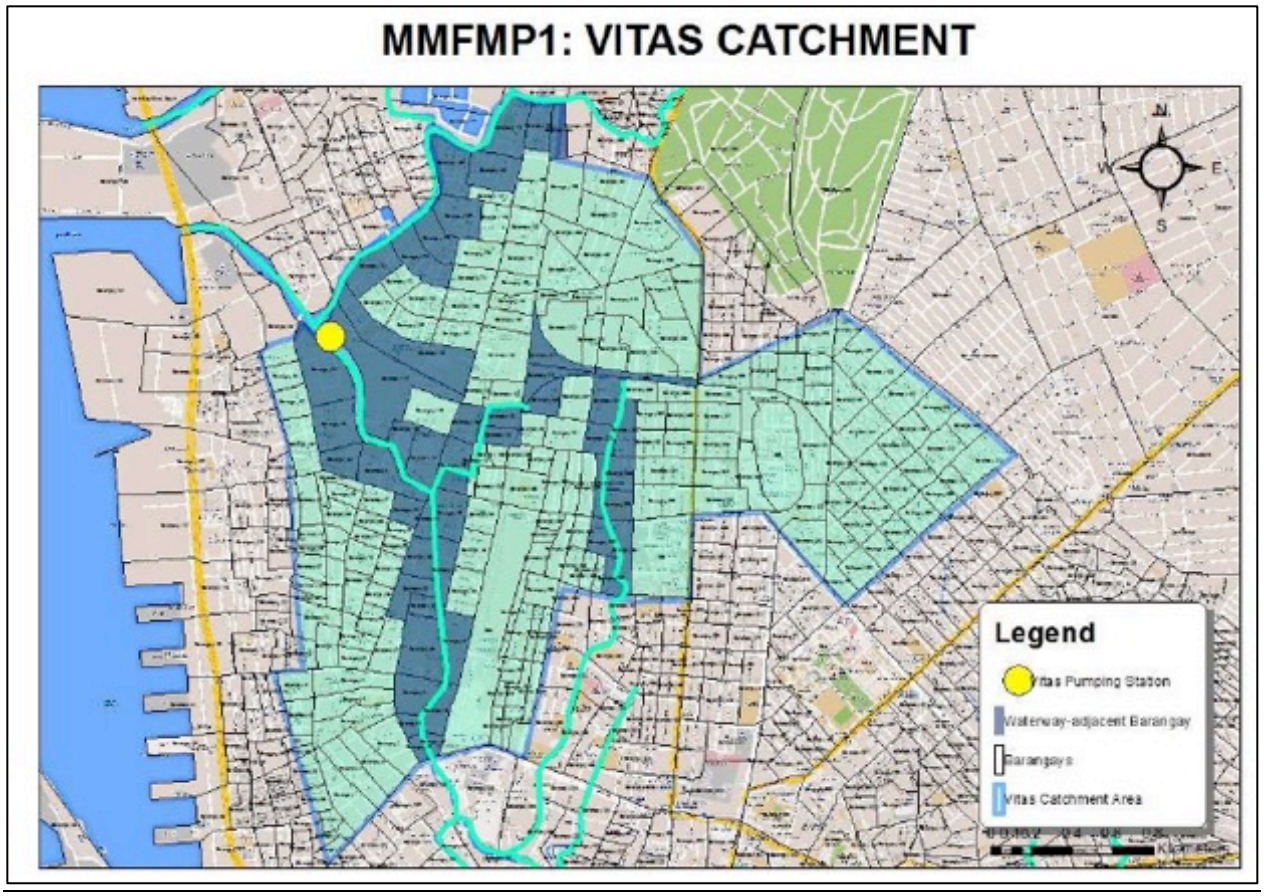


Figure 1: Location Map

2.2 Project Rationale

Many of the 57 pumping stations managed by MMDA are over 30 years old and no longer operate at full capacity. MMDA has carried out an inventory of its existing pumping stations and it is expected that this component will modernize about 36 existing pumping stations and in addition add about 20 new stations; the exact number and locations are to be determined during project implementation. Five pumping stations (Vitas, Balut, Paco, Tripa de Gallina and Labasan) are scheduled for rehabilitation and upgrading.

The rehabilitation works aims to provide more immediate flood relief in support of the development of a wider strategic plan. The program will increase the water retention capacity within project drainage areas.

2.3 Project Development Plan, Process and Components

The key features of the Vitas pumping station are shown in Table 2 while the proposed rehabilitation works are listed in Table 3.

Table 2: Features of Vitas Pumping Station

Location	Honorio Lopez Blvd., Tondo, Manila	
Date Constructed	September 14, 1994	
Date Completed	December 15, 1997	
Fund Source	Overseas Economic Cooperation Fund	
Civil Works Cost	Php 162,495,000.00	
Equipment Cost	Php 294,057,000.00	
Drainage Area (served)	578 ha	
Run-off Coefficient (design)	0.70	
Time of Concentration	45 minutes	
Total Length of Estero Served	2.3km	
Total Length of Conduits Served	4.53km	
Pumps Starting Level	10.10m	
Pumps Stopping Level	9.80m	
Average Width of Estero	50m	
Bottom Elevation (m)	6.70 (estero); 4.65 (suction)	
Top of Revetment (m) at P/S	12.20m	
Main Drainage Pump/Engine		
Type	Horizontal Shaft Axial Flow Pumps	
Total no. of Units	5	
Capacity	6.40 cu.m./s	
Total Pumping Capacity	32.0 cu.m./s	
Bore	1.65m	
Total Dynamic Head	3.2m	
Brake Horsepower	300 hp, Type: S165L-DT	
Diesel Generator/Engine		
Total no. of Units	1	
Capacity (KVA)	200	
Brake Horsepower	300 hp, Type: S165L-T	
Floodgate		
Width	10m	
Height	4.35m	
No. of Gates	2 unit	
Average Fuel Consumption/Engine/Hr	Main Engine	Generator
	84L	60L
Average Garbage Generated/Day	Rainy Season	Dry Season
	5 cu.m	1 cu.m
Final Disposal Site	Tanza, Navotas Sanitary Landfill	

Table 3: Rehabilitation works at Vitas Pumping Station

Station		Scope of Work
Vitas Pump Station	1	Replacement of prime power from diesel engine to electric motor
	2	Upgrading of pump capacity
	3	Supply and installayion of 2 generator sets as standby power
	4	Connection to Meralco power supply as primary power
	5	Rehabilitation / replacement of auxiliary equipment
	6	Rehabilitation / replacement of horizotal and inclined conveyor system
	7	Rehabilitation / replacement of one unit authentic trashrake assembly
	8	Rehabilitation of one unit garbage hopper
	9	Replacement of 5 units of secondary screens
	10	Replacement of all LCP, MCC and electrical wirings
	11	Rehabilitation of pump station building and lightings
	12	Rehabilitation of 3 units floodgates
	13	Installation of additional storage tank
	14	Rehabilitation of additional crane
	15	Rehabilitation and upgrading of Vitas Warehouse

3. DESCRIPTION OF PROJECT PHASES

3.1 Pre-Construction / Pre-Development Phase

Pre-development activities included the preparation of the plans of the project and the securing of permits and clearance from Government agencies.

3.2 Construction / Development Phase

Construction activities include the removal of old equipment and facilities, installation of new equipment, and dredging of silt from the Estero de Vitas.

3.3 Operational Phase

The project will continue to operate as a pumping station to control flooding within the drainage area. Regular activities during the operational phase include the operation of the pumps and motors, maintenance of equipment, and disposal of garbage collected from silt traps.

3.4 Abandonment Phase

Abandonment activities of the project will be limited to the remaining structures at the site. During the abandonment of the temporary facilities used during the construction and installation of facilities, the contractor and project management group shall ensure that the construction wastes will be properly collected.

During the post-operation stages, abandonment of structures and removal of equipment and facilities shall be left under the responsibility of MMDA. The equipment and machinery and all other

appurtenances related to the process will be sold to potential buyers. All other parts and equipment and waste produced during the abandonment activities will be sold as scrap.

4. PROJECT EMISSIONS / EFFLUENT / HAZARDOUS WASTE / SOLID WASTE / OTHER WASTES

Wastes from the project consist of the following:

- Construction wastes during rehabilitation and upgrading of the pumping station
- Waste oil from equipment dismantling
- Dust during construction
- Wastewater from workers
- Solid wastes
- Resuspended sediments from dredging activities
- Dredged materials
- Air pollutants from the operation of standby generator sets
- Hazardous waste such as busted fluorescent lamps, empty chemical containers from cleaning/maintenance activities and used oil from maintenance of generator set.

The Environmental and Social Management Plan for Vitas Pumping Station is presented in Table 4.

Table 4: Environmental and Social Management Plan

Environmental and Social Management Plan for Vitas Pumping Station					
Activity and Environmental Aspects	**Environmental and Social Impacts**	**Mitigation and Enhancement Measures**	**Responsibility**	**Cost**	**Instruments/ Reference**
Rehabilitation and Upgrading of Vitas Pumping Station	Generation of construction wastes	• Implementation of Solid Waste Management Plan (SWMP) • Segregation of solid waste according to recyclables and non-recyclables • Repair or re-use of available construction materials and equipment • Hauling of discarded/recyclable items by licensed haulers	MMDA Contractor LGUs	Part of construction costs	Refer to: ECOP (Solid Waste)
	Generation of waste oil from equipment dismantling	• Segregation of hazardous wastes from regular wastes • Storage of hazardous items in sealed, sturdy, and properly marked containers • Hauling of hazardous items by accredited	MMDA Contractor	Part of construction costs	Refer to: ECOP (Hazardous Waste)

Environmental and Social Management Plan for Vitas Pumping Station					
Activity and Environmental Aspects	**Environmental and Social Impacts**	**Mitigation and Enhancement Measures**	**Responsibility**	**Cost**	**Instruments/ Reference**
		haulers/treaters			
	Generation of dust	• Regular watering of construction sites that have high dust concentration • Avoid long exposure of excavated soil and sand piles to strong winds by applying canvass covers • Regular clean-up and housekeeping of construction areas	MMDA Contractor	Part of construction costs	Refer to: ECOP (Dust Generation)
	Generation of noise	• If piling is necessary, perform monitoring for nearby concrete structures that may be affected • Notify nearby residents about the activities of using heavy equipment	MMDA Contractor	Part of construction costs	Refer to: ECOP (Noise and Vibration)
	Generation of wastewater from workers	• Follow basic housekeeping policies • Provision of sanitation facilities (i.e., portable comfort rooms)	MMDA Contractor	Part of construction costs	Refer to: ECOP (Water Pollution)
	Occupational hazards	• All personnel are required to wear proper PPEs • All works must be supervised by trained and competent engineers and workers • First aid stations, safety equipment and signage shall be made available on working areas	MMDA Contractor	Part of construction costs	Refer to: ECOP (Workers Safety)
Dredging activities along Estero de Vitas	Re-suspension of sediments	• Provision of designated disposal sites to be identified by DPWH	DPWH District Engineering Office	To be determined	Refer to: ECOP (Dredged Materials)
	Generation and disposal of	• Provision of designated disposal	DPWH District Engineering	To be determined	Refer to: ECOP (Dredged

Environmental and Social Management Plan for Vitas Pumping Station					
Activity and Environmental Aspects	**Environmental and Social Impacts**	**Mitigation and Enhancement Measures**	**Responsibility**	**Cost**	**Instruments/ Reference**
	dredged materials	sites to be identified by DPWH	Office		Materials)
	Odor	• Immediate transportation of dredged materials to disposal sites to be identified by DPWH • Coordination with barangays	DPWH District Engineering Office	To be determined	Refer to ECOP (Dredged Materials)
	Occupational hazards	• All personnel are required to wear proper PPEs • All works must be supervised by trained and competent engineers and workers • First aid stations, safety equipment and signage shall be made available on working areas	DPWH District Engineering Office	Part of construction costs	Refer to: ECOP (Workers Safety)
Operation of the Pumps	Generation of noise	• Regular maintenance and monitoring of equipment	MMDA Contractor	Part of maintenance cost	Refer to: ECOP (Noise and Vibration)
	Generation of solid wastes	• Implementation of Solid Waste Management Plan (SWMP) in coordination with LGU • Segregation of solid waste according to recyclables and non-recyclables • Repair or re-use of available construction materials and equipment • Hauling of discarded/recyclable items by licensed haulers	MMDA and LGU-Manila LGU-contracted SW hauler (IPM Construction & Devt)	Part of construction costs	Refer to: ECOP (Solid Waste)
	Generation of wastewater from workers	• Follow basic housekeeping policies	MMDA Contractor	Part of construction costs	Refer to: ECOP (Water Pollution)

Environmental and Social Management Plan for Vitas Pumping Station					
Activity and Environmental Aspects	**Environmental and Social Impacts**	**Mitigation and Enhancement Measures**	**Responsibility**	**Cost**	**Instruments/ Reference**
		• Provision of sanitation facilities (i.e., portable comfort rooms)			
	Occupational hazards	• All personnel are required to wear proper PPEs • First aid stations, safety equipment and signage shall be made available on working areas	MMDA Contractor	Part of maintenance cost	Refer to: ECOP (Workers Safety)
Social Impacts	Involuntary Resettlement	• Implementation of Resettlement Action Plan (RAP)	MMDA Contractor	To be determined	
	Traffic and access restriction	• Avoid deliveries during rush hour • Strategic routing to avoid sensitive areas such as schools and hospitals • Restrict movement of children on access roads when trucks are approaching. This will require coordination between the staff at the pumping station and the haulers.	MMDA Contractor in coordination with barangay	To be determined	Refer to ECOP (Traffic Management)
	Community hazards	• Coordination with barangays	MMDA Contractor	To be determined	Refer to ECOP (Communication with local communities)

3.1.1 Project Cost

The cost of project development is Php 840 million or about US$17.9 million.

3.1.2 Project Duration and Schedule

Based on the general work schedule of the project, the rehabilitation of the pumping station will be completed within a period of approximately 24 months, starting early 2018. With regard to dredging, this assumes that resettlement of the 165 ISFs in the technical footprint is completed by the end of 2017.

ANNEX B: ENVIRONMENTAL DUE DILIGENCE CHECKLIST AND GUIDE QUESTIONS

Note: The due diligence screening will identify gaps and deficiencies that will have to be identified and addressed in the ESIA/ESMP.

ENVIRONMENTAL DUE DILIGENCE CHECKLIST (Existing Pumping Stations)

Name of Project:		
Location:		
A. Technical Details of PS:		
Date operated:		
Rated Capacity:		Current Working Capacity:
Daily schedule of operation:		
Describe the PS Facilities: (operating cap., equipment at site and condition, etc.)		
Describe surrounding / adjacent establishments/facilities and estimate distance:		
North :		
East :		
South :		
West :		
B. Solid Waste Management:		
Solid waste collection system:		
Solid waste disposal system:		
Daily volume of solid waste collected:		Daily volume of solid waste disposed:
Location of disposal site:		
Solid waste contractor:		
C. Health and safety management:		
1. No. of Workers:		
2. Health statistics: - Work safety days - Accidents		
3. Is there a health and safety plan?		
4. Is there an occupational health and safety unit?		
5. Has safety trainings and orientations conducted for workers? - number of trainings - number of people involved in trainings		
6. Are there safety warning signs within the site?		

7. Are workers wearing personnel protective equipment (e..g hard hats, ear mufflers, boots, etc.)?
8. Is there a first-aid kit or emergency kit at the site?
9. Is occupational noise being measured at the site? What is the result of monitoring? What noise protection measures are being implemented?
10. Are safety railings provided in danger areas?
D. Sanitation:
1. Is domestic solid waste being segregated and disposed regularly?
2. Is there a domestic wastewater treatment system (e.g. septic tank)?
3. Is there safe and potable water supply at the site?
E. Environmental Regulatory Compliance
1. Does the project have an Environmental Compliance Certificate? Is it posted onsite?
2. What are the capacities of the generator sets? Does these gensets have the necessary Permit to Operate from DENR? Is source emission testing being done on the gensets? If yes, how frequent? What is the result of the source emission test? Is it posted onsite?
3. Is the facility registered as Hazardous Waste Generator with the DENR-EMB in accordance with RA6969?
4. Does the facility practice solid waste segregation?
5. Is there a Pollution Control Officer?
F. Environmental Management and Monitoring Plan
1. Is there an environmental management plan?
2. Is there an oil storage tank at the site? What is the capacity? Is there an oil containment system?
3. What is the distance of the nearest residential household to the site?
4. Is water quality being monitored?
5. Is air quality being monitored?
6. Is the site affected by flooding in the past? What measures were undertaken to avoid damage to the facility during flood events?
7. Has there been complaints received by communities about the operation of the pumping station? What is the nature of the complaint?

Guide Questions

Environmental Due Diligence of Waste Disposal Sites (can be used for sediment disposal site as well)

A. Waste collection and transport system

a. Name of waste hauler
b. Contract details (Start and end of contract)
c. No. of hauling vehicles
d. No. of trips per day or per month
e. Volume of waste collected
f. Is there waste segregation? By Whom? Provide details.
g. Disposal site(s)
h. No. of haulers/workers; shifts per day
i. Are workers provided with PPEs? Describe PPEs being used.
j. What is the waste collection route?
k. What is the maintenance program for vehicles?

B. Waste disposal

a. Is waste disposal site located near residential areas, water supply wells, surface water bodies, drainage canals? Describe vicinity of the waste disposal site.
b. Area occupied by waste disposal site
c. Design capacity of the landfill? Start of operation?
d. How many cells have been occupied to date? Expected life of the landfill?
e. Who owns the land? Who owns or operates the facility?
f. Is there suitable soil cover material available at the site?
g. Is there waste segregation at the waste disposal site? Describe the waste segregation system.
h. Are hazardous and infectious wastes being accepted at the facility? If yes, is there are separate area for these special wastes?
i. Is there a composting facility for organic waste?
j. How is the waste from the pumping station being handled at the facility? Describe the procedure of receiving the waste, recording, weighing, up to disposal.
k. How much is the tipping fee?
l. Are there waste pickers? Describe the waste picking situation.
m. Is there a runoff and leachate management system at the site? Describe the condition.
n. Is there a landfill gas collection system?
o. Describe the housekeeping condition at the site.
p. No. of workers at the waste disposal site. No. of shifts per day.
q. Are there environmental permits (e.g. ECC, Discharge Permit, LLDA Clearance- if applicable, Permit to Operate (genset), HW Registration)? Get copies of the permits.
r. Is there environmental monitoring being conducted at the facility (e.g. effluent, ambient air, surface water quality, groundwater quality)? Parameters being monitored? What are the results? Frequency of monitoring?
s. What is the status of compliance with DENR and LLDA requirements? Is there a pending pollution case?
t. Has there been incidents of fire or explosion at the landfill? When? How was this addressed?
u. Are there firefighting equipment at the site?

v. What is the emergency response procedure in case of hazardous events at the disposal site?

Environmental Due Diligence Checklist for Resettlement Sites

This section presents the various information required to be submitted by the DPWH/MMDA as part of the environmental due diligence for the resettlement site.

SECTION 1. GENERAL INFORMATION

1.1 Project Title : _____

1.2 Project Location : _____

1.3 Proponent : _____

Contact Person : _____

SECTION 2. PROJECT DESCRIPTION

2.1 Project Description/Objectives: _____

2.2 Project Cost

2.3 Land Ownership

Total Land Area (sq. meters or has.):_____

General Land Classification: [ ] Public Land [ ] A & D

If public land, what classification:

[ ] Ancestral Land [ ] Reservation [ ] Others _____

Status of Land Ownership :

[ ] owned/title by virtue of:

OCT or TCT # _____

CLT/Emancipation Patent No. _____

Free Patent No. _____

Homestead Patent No. _____

[ ] Owned/untitled (tax declaration) _____

[ ] stewardship contract: _____

[ ] lease: Lease Contract No. _____

2.4 Project Location

How do you describe the general location of the project site?

[ ] Developed Area (within a built-up-area with presence of utility systems or network, especially water supply, roads and power supply)

[ ] Underdevelopment Area (relatively far from the urban center with predominant absence of utility system)

2.5 Land Use Classification (base on approval land use plan of the City or municipality)

[ ] Agricultural [ ] Residential [ ] Others, pls. specify

[ ] Industrial [ ] Forest Land _____

[ ] Commercial [ ] Open Space

[ ] Tourism [ ] Institutional

2.6 Proponent Land Use Allocation

Land Use	Area Allocation (sq.m./ha)	% to Total Land Area
1. Saleable Area		
2. Open Spaces		
2.1 park & playgrounds		
2.2 community facilities		
-multi-purpose center		
-chapel		
-utilities area		
-cooperative store		
-parking area		
Others (pls. specify)		
2.3 circulation system		

Land Use	Area Allocation (sq.m./ha)	% to Total Land Area
-major road		
-minor road		
-Motor court (cul-de-sac)		
-alleys		
-footpath/pathways		
-setbacks		
Total		

2.7 Project Components

- Housing

Type of Unit	No. of Units	Lot Area/Unit (sq.m)	Floor Area per Unit (sq. m.)	Height (no. of floors)	Max. No. of Rooms	Max. No. of Toilet & Bath
Single Detached						
Duplex Houses						
Row Houses						
Multi-Family Dwelling Units a. studio type b. 1 bedroom c.2 bedrooms						

Will fire exits be provided for multi-family dwelling units?

[ ] Yes [ ] No

Housing Components	Construction Material To Be Used
Roofing	
Walls	

Housing Components	Construction Material To Be Used
Windows	
Partitions/Divisions	
Toilet and Bath	
Firewall	
Flooring	
Others, pls. Specify	

2.8 Utilities and Infrastructures

Water Supply

- Demand

What is the estimated daily water requirement for the entire project during operation? _____ cu.m.

Water Demand Allocation (cu.m):

Per household connection expressed in liters per person per day (lpcd) _____

For fire protection, watering of parks and gardens, etc. (specify)

- Supply

Is the project going to connect to an existing public water supply system (Level III)?

[ ] Yes [ ] No

Area you providing for additional water sources as reserve or for emergency purposes?

[ ] Yes [ ] No

If yes, what will be used as reserve or emergency source of water supply?

[ ] rainwater collected in storage tanks # of tanks _____
Capacity/tank _____

[ ] rainwater collected in reservoir # of reservoirs _____
Capacity _____

[ ] deepwell with manual or hand pump # of pumps _____

[ ] deepwell with electric or motor pump Capacity or Hp_____

[ ] others, please specify _____

If the project is not tapping a public water supply system, what will be the main source of domestic water supply?

[ ] surface water body (specify whether creek, spring, stream or river)

Water Source	Name of Water Body	*Location*	Distance from Site (km)	Mode of Dev't or Dist	Volume
1. Creek					
2. Spring					
3. Stream					
4. River					
5. Others					

a) Impounding dam/reservoir with storage tank and distribution to individual households by gravity?

b) Spring box pumped to a reservoir and distributed by gravity?

c) Others(specify)

[ ] deep well with motor pump and overhead storage tank

No. of overhead storage tank:_____ Storage capacity/tank (m^3) _____

[ ] deep well with manual/hand pump no. of wells _____

[ ] rainwater collected in storage tanks # of tanks _____

Capacity/tank (cu.m.) _____

[ ] rainwater collected in reservoir # of reservoirs _____

Capacity _____

[ ] others, pls. specify _____

Water Treatment

Is there provision for water treatment of your independent water source?

[ ] Yes [ ] No

If yes, what type of water treatment?

[ ] chlorination [ ] Filtration

[ ] others (specify) _____

Drainage System

Type of drainage:

- Major roads: [ ] open canal [ ] closed/underground drainage
- Other roads: [ ] open canal [ ] closed/underground drainage

Where does the drainage system drain?

[ ] public drainage system [ ] natural outfall/water body

What water body (e.g river, creek or stream) will serve as the outfall of the sewerage and drainage systems? _____

Where is this located? _____

Sewage Disposal System

- Sewage System:
  - [ ] Individual septic tank [ ] Communal septic tank
- Sewage Design:
  - [ ] 2-chamber septic tank w/ leaching
  - [ ] 3-chamber septic tank w/ leaching
- Sewage Disposal :
  - [ ] disposal to an existing public sewage system
  - [ ] treated in a community disposal plant or communal septic tank
  - [ ] treatment in individual septic tank with disposal by absorption field or leaching pit
  - [ ] Others (specify) _____

Power Supply

Source of power supply:

[ ] Local Electric Cooperation : _____

[ ] Own Generator Capacity (HP) _____

[ ] Others, pls. specify _____

2.9 Garbage Disposal System

- Collection system:
  - [ ] Association/project-maintained garbage collection system
  - [ ] Integrated into the municipal garbage collection system
  - [ ] Others (specify): _____

Will there be a waste sorting /segregation system to be employed prior to disposal?

[ ] Yes [ ] No

- Disposal system
  - [ ] Ecological solid waste management (e.g. composting)
  - [ ] Open dumpsite outside of the project site
  - [ ] municipal/city landfill area
  - [ ] others _____

Location of the Waste Disposal Site: _____

SECTION 3. DESCRIPTION OF PROJECT SURROUNDINGS

3.1 Physical Environment

Components/Parameters	Answers		Remarks
	Yes	No	
What is the general elevation of the project area? < 100 masl 100-300 masl 301-500 masl 501-1,000 masl 1001-1500 masl >1,500 masl (To determine elevation, refer to the topographic map where the elevation per contour line is indicated)			(indicate the area per elevation range or estimate the % to total area)
Are there areas in the site where indications of soil erosion are occurring? If yes, what activities are causing erosion?			Causes of erosion: [ ] heavy rains [ ] unstable slopes [ ] others, pls.

Components/Parameters	Answers		Remarks
	Yes	No	
			specify _____ _____
Soil type of the area: [ ] sandy soil [ ] clayey soil [ ] sandy loam soil			Other soil types: _____ _____
Are there existing water bodies bodies found near or within the site, e.g. creeks or streams? If yes, please enumerate them in the opposite space and indicate their location. If they have no names, indicate the number of water bodies. [these waterbodies should be shown in the topographic map]			
Is there an access road going to the project site? If yes, what is its distance to the site _____km			Type of access road:
Does the site conform to the approved land use plan of the city/municipality?			
Are there existing structures or developments around the project site? If yes, please list them in the space below or in the opposite space.			

What are the present uses of the water bodies within or near the project site?

[ ] bathing [ ] washing [ ] fishing [ ] source of drinking water

[ ] recreation (e.g. swimming, boating, etc.) [ ] others _____

What is the present land use of the area?

[ ] Prime Agriculture Land [ ] Orchard

[ ] Grassland [ ] Marshland/Mangrove

[ ] Built-up [ ] Fishpond

[ ] Others, pls. specify _____

Is the land allocation and alignment of the various utilities integrated with the existing networks and projects outside of the boundaries of the project site?

[ ] Yes [ ] No

3.2 Biological Environment

Components/Parameters	Answers		Remarks
	Yes	No	
Are there existing trees and other types of vegetation in the site? If yes, please provide examples.			
Are there birds and other forms of wildlife found in the area?			
Are there fishery resources in the water bodies found near or within the site?			
Is the site near or within a watershed or forest reservation area? If near only, how near? _____ m or km If within, indicate name of the watershed or forest reservation area.			

If answer is yes to the above answers, please provide examples of these species (common or local name) in the table provided below.

Birds and Other Wildlife	Trees and Other Important Vegetation	Fishery Resources

1.		
2.		
3.		
4.		
5.		

3.3 Socio-Economic Environment

Components/Parameters	Total Number
Are there existing settlements in the project area? [ ] Yes [ ] No If yes, how many households or families? How many are legitimate landowners? How many are tenants? How many are squatters?	
What is the total population of the barangay(s) covered by the project?	
Average family size:	
What are their source(s) of livelihood? <u>Livelihood Type</u> [ ] farming [ ] fishing [ ] backyard poultry and piggery [ ] vending / buy and sell	

Components/Parameters	Total Number
[ ] sari-sari store [ ] others, pls. specify _____ _____	

Are there other existing local organizations in the area? [ ] Yes [ ] No

If yes, please list down these organized groups e.g. associations, cooperatives, etc. below:

_____

_____

Are there existing social infrastructures in the barangay? [ ] Yes [ ] No

If yes, what are these social infrastructures? (pls. check)

[ ] schools
[ ] communication (e.g.radio, TV, mail, newspaper)
[ ] health centers/clinics
[ ] churches/chapel
[ ] hospitals
[ ] roads
[ ] transportation
[ ] others, _____

SECTION 4. PREDICTED AND ASSESSED IMPACTS AND PROPOSED ENHANCEMENT/ MITIGATION MEASURES

4.1 Pre-Construction/Construction Phase

Predicted and Assessed Impacts	Answers		Proposed Enhancement/ Mitigating Measures	Remarks
	Yes	No		

Predicted and Assessed Impacts	Answers		Proposed Enhancement/ Mitigating Measures	Remarks
	Yes	No		
1. Increase in dust generation due to clearing, civil works and earthmoving activities			[ ] Regular watering of unpaved roads or exposed soils/ground [ ] Remove soil /mud from tires of trucks and equipment before leaving the area. [ ] Hauling trucks should be covered with canvass or any equivalent materials [ ] Set-up temporary fence around the construction area.	
2. Top soil removal and loss due earthmoving activities, transport, access road construction			[ ] Stockpile the top soil in a safe place and use as final grading material or final layer [ ] As soon as possible, rip-rap or re-vegetate the area	
3. Erosion from exposed cuts and landslides due to earthmoving and excavation activities			[ ] Conduct construction activities during dry season [ ] Avoid long exposure of opened cuts [ ] Installation of barrier nets	

Predicted and Assessed Impacts	Answers		Proposed Enhancement/ Mitigating Measures	Remarks
	Yes	No		
4. Sedimentation/ siltation of drainage or waterways from unconfined stockpiles of soil and other materials			[ ] Set-up temporary silt trap/ponds to prevent siltation [ ] Proper stockpiling of spoils (on flat areas and away from drainage routes [ ] Spoils generated from civil works be disposed as filling materials	
5. Pollution of nearby water body due to improper disposal of construction wastes			[ ] Set-up temporary disposal mechanism within the construction area and properly dispose the generated solid wastes. [ ] Set up proper and adequate toilet facilities [ ] Strictly require the contractor and its workers to observe proper waste disposal and proper sanitation	

Predicted and Assessed Impacts	Answers		Proposed Enhancement/ Mitigating Measures	Remarks
	Yes	No		
5. Loss of vegetation due to land clearing			[ ] Limit land clearing as much as possible [ ] Provide temporary fencing to vegetation that will be retained [ ] Use of markers and fences to direct heavy equipment traffic in the construction site and avoid damage to plants [ ] Re-plant/ plant indigenous tree species and ornamental plants	
6. Disturbance or loss of wildlife within the influence area due to noise and other construction activities			[ ] Re-establish or simulate the habitat of affected wildlife in another suitable area [ ] Schedule noisy construction activities during day time [ ] Undertake proper maintenance of equipment and use mufflers	
7. Noise generation that can affect the nearby resident			[ ] Schedule noisy construction activities during day time [ ] Undertake proper maintenance of equipment and use mufflers	
8. Generation of employment			[ ] Hiring priority shall be given to qualified local residents	

Predicted and Assessed Impacts	Answers		Proposed Enhancement/ Mitigating Measures	Remarks
	Yes	No		
9. Conflicts in right of way			[ ] Conduct consultation and settle agreements before finalizing detailed design	
10. Increased traffic and possible congestion			[ ] Strict enforcement of traffic rules and regulations [ ] Proponent should provide traffic aid during peak hours	
11. Increase in the incidence of crime and accidents			[ ] Strictly require the contractor and its workers to follow safety rules and regulations in the construction and in the locality (in coordination with local authorities)	

5.2 Operation Phase

Predicted and Assessed Impacts	*Answers*		*Proposed Enhancement /Mitigating Measures*	*Remarks*
	Yes	*No*		
1. Generation of domestic effluents			[ ] Provision of an effective (at least 3-chamber septic tank) [ ] Provision of adequate wastewater treatment facilities	

Predicted and Assessed Impacts	*Answers*		*Proposed Enhancement /Mitigating Measures*	*Remarks*
	Yes	*No*		
2. Generation of solid wastes			[ ] Segregation of recyclable materials [ ] Proper collection and disposal of solid wastes [ ] Proper housekeeping and waste minimization	
Increased traffic and possible congestion as well as increase risk of vehicular and related accidents			[ ] Strict enforcement of traffic rules and regulations [ ] Placement of signage and warnings in appropriate places	

ANNEX C: TERMS OF REFERENCE AND RECOMMENDED FORMAT FOR AN ESIA

1. INTRODUCTION / BACKGROUND INFORMATION

(Present a brief introduction about the proposed subproject that includes the location, size and scope of the subproject including project area of influence and locations of associated ancillary facilities. Also present a map showing the location of the pumping station and vicinity.)

2. OBJECTIVES

This Terms of Reference outlines the requirements for consultancy service for the preparation of an Environmental and Social Impact Assessment (ESIA) report of the proposed subproject (Name of Subproject). The aim of the ESIA is to identify environmental and social impacts and corresponding mitigation measures of the subproject. The ESIA shall be prepared as a tool in understanding the environmental and social consequences to facilitate the protection, restoration, and enhancement of the environment.

Specifically, the ESIA for the proposed subproject will be carried out with the following objectives:

(a) Document existing environmental and social baseline information in the project area and surrounding areas;
(b) Analyze alternatives/project options and provide advice on the most appropriate option taking into account environment and social issues;
(c) Outline project activities that will be undertaken during implementation of the subproject;
(d) Conduct project public consultations and document the disclosure activities undertaken;
(e) Identify adverse environmental and social impacts of the subproject and propose mitigation measures to address such impacts;
(f) Outline an Environmental and Social Management Plan (ESMP) with clearly defined institutional structure that will oversee the implementation of the ESMP;
(g) Conduct due diligence of disposal sites of solid wastes and dredged materials that will be generated from the pumping station; and
(h) Conduct due diligence of resettlement sites, where applicable, and formulate a Resettlement Action Plan (RAP) for displaced persons.

3. SCOPE OF THE ESIA STUDY

The consultant will study and prepare the following aspects for inclusion in the ESIA:

(a) Description of the proposed project. Provide a brief description of the relevant components of the project including maps at appropriate scale. The project description

should include information on location, general layout, size, capacity, implementation activities, schedule, staffing and support, facilities and services, operation and maintenance activities, and associated ancillary facilities.

(b) Description of the Environment and Social Condition. Present the baseline data on the relevant environmental and social characteristics of the project area of influence. Include information on the following:

- Physical environment: Geology, soils, climate and meteorology, ambient air quality, noise, surface water quality, hydrology and flooding, existing sources of water pollution.
- Biological environment: Terrestrial and aquatic flora and fauna, rare or endangered species, sensitive habitats, including parks or natural reserves, species with potential to become nuisances, vectors.
- Socio-cultural environment: Present and projected population, land use, planned development activities, community structure, employment, distribution of income, goods and services, public health, cultural properties, economy, traffic, education, health.

(c) Legislative and Regulatory Considerations Relative to the Project: Describe the pertinent regulations and standards governing environmental quality, health and safety, protection of sensitive areas, siting, land use control, etc. at national, regional and local levels.

(d) Determination of the Potential, Cumulative and Induced Impacts of the Proposed Subproject: In this analysis, distinguish between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Identify impact which are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental and social costs and benefits.

(e) Development of Management Plan to Mitigate Negative Impacts: Recommend feasible and cost-effective measures to prevent or reduce significant adverse impacts to acceptable levels. Estimate the impacts and costs of these measures, and of the institutional and training requirements to implement the measures. Consider compensation to affected parties for impacts, which cannot be mitigated. Prepare a management plan including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures.

(f) Identification of Institutional Needs to Implement Environmental and Social Assessment Recommendations: Review the authority and capability of institutions at local, regional, and national levels and recommend steps to strengthen capabilities in the management and monitoring of the ESMP.

(g) Development of a Monitoring Plan: Prepare a detailed plan to monitor the implementation of mitigation measures to address the impacts of the proposed subproject during construction and operation. Include in the plan an estimate of the costs and a description of other inputs such as training and institutional strengthening programs needed to carry it out.

(h) Assist in Information Disclosure, Stakeholder Consultation, and Inter-Agency Coordination: Assist DPWH and MMDA in the conduct of stakeholder consultation,,

information disclosure and inter-agency coordination. Identify stakeholders and interest groups and prepare process documentation summarizing the issues and concerns raised during the consultation meetings. Ensure that the ESIA document is publicly disclosed through the DPWH and MMDA website and that hard copies are readily available at both offices.

(i) Assist the DPWH/MMDA in securing the Environmental Compliance Certificate (ECC) or Certificate of Non-Coverage (CNC). Where required, prepare any additional data that may be required by the DENR-EMB for the expeditious issuance of the ECC/CNC.

(j) Development of a Resettlement Action Plan (RAP): When necessary, in the case of displaced communities, a resettlement action plan should be incorporated in the ESIA report.

4. RECOMMENDED FORMAT FOR AN ESIA

Table of Contents

Executive Summary

I. Introduction
   - A. Project Background
   - B. ESIA Approach and Methodology
   - C. ESIA Process Documentation
   - D. ESIA Team
   - E. ESIA Study Schedule
   - F. Summary of Consultations and Information Disclosure Activities

II. Policy, Legal, and Administrative Framework
   - A. World Bank Screening and Classification
   - B. Approach to Management of Environmental and Social Impacts (applicable national and local laws and regulations)

III. Project Description
   - A. Project Rationale
   - B. Project Alternatives
   - C. Project Components
   - D. Project Information
   - E. Description of Project Phases
     - a. Pre-Construction Phase
     - b. Constrution Phase
     - c. Operational Phase
     - d. Abandonment Phase

IV. Baseline Environmental Conditions
   - A. Delineation of Project Impact Areas
   - B. Physical Environment
     - a. Geology and Geomorphology

ANNEX D: TOTAL NUMBER OF PUMP STATIONS

MMDA					
Municipality	Major Pump Station	Minor Pump Station	New Pump Station	Relief Pump Station	Grand Total
Caloocan			1	1	2
Makati	1	2	2		5
Malabon			5	14	19
Mandaluyong			2		2
Manila	14	8	8		30
Muntinlupa			3		3
Pasay	2		2		4
Pasig		1	3		4
Pateros			1		1
Quezon City		2			2
San Juan	2	1	3		6
Taguig	3		1		4
Taytay	1				1
Valenzuela			5		5
Total	23	14	36	15	88

DPWH					
Municipality	Major Pump Station	Minor Pump Station	New Pump Station	Relief Pump Station	Grand Total
Malabon			3	24	27
Manila			1		1
Paranaque			3		3
Quezon City			16		16
San Juan			4		4
Taguig	0				0
Total	0	0	27	24	51

ANNEX E: CLEANING AND DREDGING WORKS TO BE CARRIED OUT IN THE FIRST FIVE PUMPING STATIONS

TRIPA DE GALLINA PUMPING STATION

TYPE OF DRAINAGE SYSTEM CONNECTED TO THE PUMPING STATION

	LENGTH	VOLUME TO BE DECLOGGED
A. DRAINAGE LATERALS	191,483.70	38,238.03
B. DRAINAGE MAINS	11,492.00	196,552.50
C. OPEN WATERWAYS	14,837.00	237,358.50

VITAS PUMPING STATION

TYPE OF DRAINAGE SYSTEM CONNECTED TO THE PUMPING STATION

	LENGTH	VOLUME TO BE DECLOGGED
A. DRAINAGE LATERALS	98,000.00	138,741.64
B. DRAINAGE MAINS	3,257.80	6,985.31
C. OPEN WATERWAYS	10,786.40	237,440.46

PACO PUMPING STATION

TYPE OF DRAINAGE SYSTEM CONNECTED TO THE PUMPING STATION

	LENGTH	VOLUME TO BE DECLOGGED
A. DRAINAGE LATERALS	98,000.00	21,538.50
B. DRAINAGE MAINS		
C. OPEN WATERWAYS	3,250.00	71,451.00

BALUT PUMPING STATION

TYPE OF DRAINAGE SYSTEM CONNECTED TO THE PUMPING STATION	LENGTH	VOLUME TO BE DECLOGGED
A. DRAINAGE LATERALS	8,632.60	1,578.50
B. DRAINAGE MAINS	2,005.00	7,825.97
C. OPEN WATERWAYS	3,025.00	43,627.50

TIPAS-LABASAN PUMPING STATION

TYPE OF DRAINAGE SYSTEM CONNECTED TO THE PUMPING STATION	LENGTH	VOLUME TO BE DECLOGGED
A. DRAINAGE LATERALS	-	-
B. DRAINAGE MAINS	-	-
C. OPEN WATERWAYS	-	-

ANNEX F: INVENTORY OF PUMPING STATIONS IN THE METRO MANILA AREA

Name	Type	Municipality	Location	Drainage Area (ha)	Total Pump Capacity (cms)	Indicative Cost
Labasan	Major Pump Station	Taguig			9	150
Taguig	Major Pump Station	Taguig			6	250
Hagonoy	Major Pump Station	Taguig			6	200
Roxas	New Pump Station	Quezon City			11	786
Tatalon	New Pump Station	Quezon City			7.5	250
Kalusugan	New Pump Station	Quezon City			4.9	250
Sobrepena	New Pump Station	Quezon City			1.8	260
Dona Imelda	New Pump Station	Quezon City			2.7	260
Progreso	New Pump Station	Quezon City			6.3	260
Damayang Lagi	New Pump Station	Quezon City			193.3	944
Talayan	New Pump Station	Quezon City			48.6	250
Mariblo	New Pump Station	Quezon City			40.6	250
Sta. Cruz	New Pump Station	Quezon City			47	200
Matalahib	New Pump Station	Quezon City			303.8	200
Masambong	New Pump Station	Quezon City			60.7	230
Del Monte	New Pump Station	Quezon City			92.6	200
Kaingin Bukid	New Pump Station	Quezon City			467.67	250
Balong Bato	New Pump Station	Quezon City			31.8	250
Rivera	New Pump Station	Quezon City			7.4	250
1A PRRP	New Pump Station	San Juan				
2B PRRP	New Pump Station	San Juan				
1C PRRP	New Pump Station	San Juan				
1D PRR	New Pump Station	San Juan				
Estero de Sunog Apog	New Pump Station	Manila				1000

Redemptorist	New Pump Station	Paranaque				200
Seaside	New Pump Station	Paranaque				200
Paranaque River	New Pump Station	Paranaque				700
Acacia	Relief Pump Station	Malabon	Tinajeros			140
Adante	Relief Pump Station	Malabon	Tanong			40
Artex	Relief Pump Station	Malabon	Panghulo			140
Asinan	Relief Pump Station	Malabon	San Agustin			40
Asogue	Relief Pump Station	Malabon	Tugatog			40
Balot	Relief Pump Station	Malabon	Hulong Duhat			80
Bernadette	Relief Pump Station	Malabon	Hulong Duhat			40
Bonifacio-Naval	Relief Pump Station	Malabon	Flores			80
Borja	Relief Pump Station	Malabon	Baritan			40
Concepcion	Relief Pump Station	Malabon	Rosario Village			80
Diserto	Relief Pump Station	Malabon	Tanong			40
Dulong Adante	Relief Pump Station	Malabon	Tanong			40
Dulong Borromeo	Relief Pump Station	Malabon	Longos			40
Dulong Hernandez	Relief Pump Station	Malabon	Catmon			40
Estrella	Relief Pump Station	Malabon	Tanong			40
Gabriel	Relief Pump Station	Malabon	Hulong Duhat			80
Gabriel II	Relief Pump Station	Malabon	Hulong Duhat			40
Gervacio	Relief Pump Station	Malabon	Hulong Duhat			40
Herrera	Relief Pump Station	Malabon	Ibaba			80
Longos	Relief Pump Station	Malabon	Longos			140
Magsaysay	Relief Pump Station	Malabon	San Agustin			80
Matadero	New Pump Station	Malabon	San Agustin			40
Maysilo	Relief Pump Station	Malabon	Maysilo			40
Merville-Dampalit	Relief Pump Station	Malabon	Merlville Subd.			140
Milagrosa	Relief Pump Station	Malabon	Hulong Duhat			40
Muzon	Relief Pump Station	Malabon	Muzon			80
Muzon-Dampalit	New Pump Station	Malabon	Muzon			140
Niugan Pilapil	Relief Pump Station	Malabon	Niugan			80

Niugan Spillway	Relief Pump Station	Malabon	Niugan Spillway			40
Remigio	Relief Pump Station	Malabon	Maysilo			40
Rivera	Relief Pump Station	Malabon	Tanong			80
Roque	Relief Pump Station	Malabon	Tonsuya			80
Sacristia	Relief Pump Station	Malabon	San Agustin			40
Sanciango	Relief Pump Station	Malabon	Tinajeros			40
Santolan 1, 2, & 3	Relief Pump Station	Malabon	Maysilo-Tullahan River			140
Sto. Rosario 1&2	New Pump Station	Malabon	Baritan			120
Suarez	Relief Pump Station	Malabon	San Agustin			40
Talabahan	Relief Pump Station	Malabon	Hulong Duhat			40
Tinajeros	Relief Pump Station	Malabon	Tinajeros			40

Name	Type	Municipality	Location	Drainage Area (ha)	Total Pump Capacity (cms)
Abucay P.S.	**Major Pump Station**	Manila		312.00	6.00
Aviles P.S.	**Major Pump Station**	Manila		356.00	16.45
Balete P.S.	**Major Pump Station**	Manila		52.00	2.58
Balong-Bato P.S.	**Major Pump Station**	San Juan		18.72	2.00
Balut P.S.	**Major Pump Station**	Manila		49.00	2.00

Binondo P.S.	**Major Pump Station**	Manila		279.00	11.60
Escolta P.S.	**Major Pump Station**	Manila			1.50
Hagonoy P.S.	**Major Pump Station**	Taguig		528.00	6.00
Labasan P.S.	**Major Pump Station**	Taguig		601.00	9.00
Libertad P.S.	**Major Pump Station**	Pasay		779.00	48.00
Makati P.S.	**Major Pump Station**	Makati		151.00	7.00
Paco P.S.	**Major Pump Station**	Manila		182.00	7.59
Pandacan P.S.	**Major Pump Station**	Manila		180.00	4.40
Quiapo P.S.	**Major Pump Station**	Manila		225.00	10.85
Salapan P.S.	**Major Pump Station**	San Juan		18.00	2.00
San Andres P.S.	**Major Pump Station**	Manila		356.00	19.00

Sta. Clara P.S.	**Major Pump Station**	Manila		133.00	5.30
Taguig P.S.	**Major Pump Station**	Taguig		1,423.00	12.00
Tapayan P.S.	**Major Pump Station**	Taytay		526.00	15.00
Tripa de Galina P.S.	**Major Pump Station**	Pasay		1,769.00	58.00
Uli-Uli P.S	**Major Pump Station**	Manila			6.00
Valencia P.S.	**Major Pump Station**	Manila		246.00	11.85
Vitas P.S.	**Major Pump Station**	Manila		578.00	32.00
Ayala Tunnel P.S.	**Minor Pump Station**	Makati		0.50	3.00
Ayala Tunnel P.S.	**Minor Pump Station**	Makati		0.50	3.00
San Agustin P.S.	**Minor Pump Station**	Manila		3.00	1.10
Central Post Office P.S.	**Minor Pump Station**	Manila		3.50	0.07

Jones Bridge Underpass P.S. (North side)	**Minor Pump Station**	Manila		1.00	0.07
Arroceros P.S.	**Minor Pump Station**	Manila		6.00	2.06
Jones Bridge Underpass P.S. (South side)	**Minor Pump Station**	Manila		1.00	0.10
Luneta Park P.S.	**Minor Pump Station**	Manila		15.00	0.37
Santibañez P.S.	**Minor Pump Station**	Manila		10.00	0.35
Libis P.S.	**Minor Pump Station**	Manila		2.00	0.08
Ilugin P.S.	**Minor Pump Station**	Pasig		7.50	1.00
Aurora P.S.	**Minor Pump Station**	Quezon City		1.00	0.59
Tuazon P.S.	**Minor Pump Station**	Quezon City		1.00	0.59
Rivera P.S.	**Minor Pump Station**	San Juan		2.80	0.60
Lopez R.P.S.	**Relief Pump Station**	Caloocan		-	0.11
Acacia R.P.S.	**Relief Pump**	Malabon		-	

	Station				1.30
Balot R.P.S.	**Relief Pump Station**	Malabon		-	0.11
Concepcion R.P.S.	**Relief Pump Station**	Malabon		-	0.60
Herrera R.P.S.	**Relief Pump Station**	Malabon		-	0.11
Hulong Duhat R.P.S.	**Relief Pump Station**	Malabon		-	0.11
Magsaysay R.P.S.	**Relief Pump Station**	Malabon		-	0.11
Muzon R.P.S.	**Relief Pump Station**	Malabon		-	0.11
N. Vicencio R.P.S.	**Relief Pump Station**	Malabon		-	0.27
Niugan R.P.S.	**Relief Pump Station**	Malabon		-	0.11
Rivera R.P.S.	**Relief Pump Station**	Malabon		-	0.11
Roque R.P.S.	**Relief Pump Station**	Malabon		-	0.33
Sanciangco R.P.S.	**Relief Pump Station**	Malabon		-	0.27
Santolan R.P.S.	**Relief Pump Station**	Malabon		-	0.66
Tanza R.P.S.	**Relief Pump Station**	Malabon		-	0.11
Buhangin Creek	**New Pump Station**	Mandaluyong		125.00	5.72
Buli creek P.S.	**New Pump Station**	Pasig		147.00	6.38
Carmona P.S.	**New Pump Station**	Makati		94.70	4.75

Casili Creek	**New Pump Station**	Caloocan		90.00	4.59
Cutcut Creek	**New Pump Station**	Pasay		160.00	12.00
Elysian P.S. (San Miguel)	**New Pump Station**	Valenzuela		10.00	1.05
Estero de San Antonio de Abad	**New Pump Station**	Manila		145.00	4.00
Gen. Tino	**New Pump Station**	Makati		149.00	6.44
Guadalcanal	**New Pump Station**	Manila		27.00	2.04
Hermosa St. (outfall of Blumentritt interceptor)	**New Pump Station**	Manila		222.00	8.42
Ilugin River	**New Pump Station**	Pasig		350.00	11.43
Isla P.S.	**New Pump Station**	Valenzuela		216.00	8.27
Longos creek P.S.	**New Pump Station**	Malabon		35.00	2.43
Lower Bicutan P.S.	**New Pump Station**	Taguig		739.00	18.89
Luneta South	**New Pump Station**	Manila		30.00	2.19
Magdaong River	**New Pump Station**	Muntinlupa		800.00	50.00
Marulas P.S.	**New Pump Station**	Valenzuela		84.70	4.41
Maybunga P.S.	**New Pump Station**	Pasig		129.00	5.85
Maytunas Creek	**New Pump Station**	Mandaluyong		294.00	16.00
McArthur Highway	**New Pump**	Valenzuela			

	Station			18.19	1.57
Merlville-Dampalit P.S.	**New Pump Station**	Malabon		30.00	2.19
Muzon-Kaunlaran P.S.	**New Pump Station**	Malabon		65.50	3.71
Panghulo-Artex	**New Pump Station**	Malabon		36.00	2.48
Pasong Diablo River	**New Pump Station**	Muntinlupa		1,865.00	30.00
Pateros River	**New Pump Station**	Pateros		198.00	7.80
Pedro Gil	**New Pump Station**	Manila		96.00	3.00
Progreso P.S.	**New Pump Station**	San Juan		49.20	3.06
Remedios	**New Pump Station**	Manila		56.50	3.36
Romualdez	**New Pump Station**	Manila		40.00	2.50
Salapan (second P.S.)	**New Pump Station**	San Juan		20.60	1.70
Santolan-Tullahan P.S.	**New Pump Station**	Valenzuela		326.00	10.90
Sto. Nino Creek	**New Pump Station**	Pasay		16.27	5.00
Tunasan River	**New Pump Station**	Muntinlupa		931.00	22.07
Valenzuela	**New Pump Station**	San Juan		67.00	3.76
Vito Cruz	**New Pump Station**	Manila		41.80	2.74
Wawang Polo	**New Pump Station**	Malabon		616.00	16.72

ANNEX G: CIA TERMS OF REFERENCE FOR A RAPID CUMULATIVE IMPACT ASSESSMENT OF THE METRO MANILA FLOOD MANAGEMENT PROJECT

A. Background

1. The Metro Manila Area is located in a low-lying delta, with Manila Bay to the west, Laguna de Bay to the south-east and a system of mountain ranges to the north and north-east that drain flash floods into the Pasig-Marikina River System during typhoon events. Many areas in the Greater Metro Manila Area are low-lying and designated as flood prone, with insufficient protection against frequent inundation as natural drainage is restricted.

2. The Flood Control and Sewerage Management Office of the Metropolitan Manila Development Authority (MMDA) has as its mandate the formulation and implementation of policies, standards, programs, and projects for integrated metro-wide flood control, drainage, and sewerage services in Metro Manila. Presently, MMDA operates 57 pumping stations, scattered throughout Metro Manila, including 23 major stations to discharge drainage water from populated areas into waterways and rivers servicing around 8,000 hectares (about 12.5 percent of the total area of Metro Manila) and a population of over 2.2 million people. In addition, MMDA manages 17 pumping stations which service major traffic underpasses and other public infrastructure and 17 relief pumping stations in flood prone areas such as Navotas and Malabon. Each large pumping station has a qualified mechanical engineer and electrical engineer and an average of 15 staff, including operators and utility staff. An institutional structure is in place with generally capable operational staff. MMDA's capacity to design modernization of and new pumping stations however is weak. MMDA receives the needed funds from central government for the operation and maintenance (O&M) of pumping stations. Many of the pumping stations and appurtenant infrastructure were constructed several decades ago and contain old and inefficient pumps that have lacked adequate maintenance.

3. The Department of Public Works and Highways (DPWH) is mandated to undertake the planning of infrastructure, such as national roads and bridges, flood control, water resources projects, and other public works, and the design, construction, and maintenance of national roads and bridges, and major flood control systems. Historically, DPWH has been responsible for the design and construction of large pumping stations in Metro Manila. On July 9, 2002, a Memorandum of Agreement (MoA) was entered into by DPWH and MMDA to turn over to MMDA all functions and responsibilities for flood control in Metro Manila, including all relevant programs, projects and activities as well as personnel, funds, equipment, facilities, records, assets and liabilities. However, due to the limited design capacity in MMDA, DPWH continues to design and construct pumping stations within Metro Manila. In addition, some Local Government Units (LGU) also construct some small pumping stations.

4. The government, with the technical and financial support of the World Bank, has prepared a Flood Management Master Plan for Metro Manila and Surrounding Areas. The plan, approved by the National Economic and Development Authority (NEDA) Board on September 4, 2012, proposes a set of priority structural and non-structural measures to provide sustainable flood management up to a certain safety level. The total estimated cost for the implementation of the Master Plan is about PhP 352 billion (about US$7 billion) over a 20-25 year period.

5. The main elements of the Master Plan are:

    (a) Structural measures to reduce flooding from river systems that run through the city;
    (b) Structural measures to eliminate long-term flooding in the flood plain of Laguna de Bay;
    (c) Structural measures to improve urban drainage;
    (d) Non-structural measures such as flood forecasting and early warning systems and community-based flood risk management; and
    (e) Improved institutional structure to deal with flood management in an integrated manner.

6. In order to improve the overall flood management conditions in the Greater Metro Manila Area, all interventions under elements (a) to (e) have to be implemented. Each element has unique solutions that are not linked and would be implemented independently from each other. Implementation of the master plan has started with 'easy' interventions, such as dredging, river bank protection, and improvements to a small number of pumping stations that will have localized impact. It is important to scale up such activities, which will be done under this proposed project. In parallel feasibility studies and designs of major priority interventions under elements (a) and (b), such as a high flood management dam, river embankments, and water transfer tunnels, have to be prepared that are essential for city wide improvement. Government was provided with US$6 million TA grant assistance to prepare these necessary studies and designs for major structural interventions. This TA assistance is likely to result in a phase 2 of the implementation of the master plan.

7. Several agencies are involved in flood management activities, including DPWH, MMDA, LGUs, and PAGASA (weather agency), but there is lack of overall inter-agency coordination and management. The aim of the institutional studies to be financed with trust funds is to determine the best organization that can provide overall leadership, management, and responsibility for flood management, and to bring flood management within the government's proposed integrated water resources management agenda as an integral part of river basin planning.

8. Under the Metro Manila Flood Management Project, five pumping stations within the Metro Manila area have been identified for implementation in Year 1. A consolidated Environmental and Social Impact Assessment (ESIA) has been prepared for the first five sites. In addition an Environmental and Social Management Framework was prepared to guide the PMO in the implementing safeguards in the succeeding works in the pumping stations after year 1. A Resettlement Policy Framework is also included as a companion document to the ESMF.

9. As part of the ESMF, a Cumulative Impact Assessment has been programmed to assess cumulative impacts stemming from the project (MMFMP) in particular and in the Metro Manila area in general. An initial screening has been done to identify potential VECs and an initial inventory of projects in Metro Manila.

B. Objectives

10. Given that the Metro Manila area is going to be the site of numerous interventions in flood management, 50+ pumping stations to be rehabilitated, a potential dam, a potential lakeshore dike, potential new wastewater treatment facilities, there is a need to look at the project contribution environmental and social cumulative impacts. The Metro Manila area is growing with more people

moving in to work and to live. Problems of flood management, solid waste disposal, traffic management are becoming untenable. Urban renewal and upgrade of areas in the metropolis is becoming critical. The CIA will help the government to take a more strategic look at these developments and adopt a holistic planning approach. According to Philippines EIA regulations, most of these developments will require an EIA.

11. The CIA will need to be fully understood to be able to lead towards a comprehensive management plan guiding ongoing and future developments in the region.

12. Within this framework, the proposed cumulative impact assessment will:

(a) Evaluate the contribution of MMFMP (including its associated facilities) towards cumulative impacts on Valuable Environmental Components (VEC);
(b) Assess the status and condition of each Valued Environmental Component (VEC);
(c) Assess cumulative impacts of the MMFMP in conjunction with other projects (past, present or future) on the Valued Ecological Components;
(d) Identify appropriate actions for the MMFMP to address its contribution to cumulative impacts. Identify additional management actions for each VEC.

13. The final conclusions of the CIA should define the following: (i) to what extent the MMFMP will contribute to cumulative impacts; (ii) the mitigation measures that should be implemented by the project; and (iii) the management/mitigation measures that are needed but beyond the scope of the project, including the need for consequent additional assessments that the Government will require to ensure sustainable development of the area and to develop core principles for environmental and social management and provide guidance to respective investors and project developers.

14. Guidance and supporting documentation on the preparation of a rapid cumulative impact assessment is provided by the International Finance Corporation at: http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications_handbook_cumulativeimpactassessment

C. Scope of Work

15. The firm is required by the Government of the Philippines, represented by Metro Manila Development Authority and the Department of Public Works and Highways, to assist it to prepare a cumulative impact assessment based on six steps as follows:

- **Step 1**: Identify and propose geographic and temporal boundaries for the CIA based on the screening of potential impacts on key valued ecological components. The geographic context should include administrative boundaries (municipal or city boundaries). Valued ecological components should be selected for the cumulative impact assessment.
- **Step 2**: Identify other projects and activities that could result in cumulative impacts on key VECs within established geographic and temporal boundaries.
- **Step 3**: Assess the status and condition of each VEC.
- **Step 4**: Assess the level of cumulative effects on each VEC.
- **Step 5**: Determine the significance of cumulative effects on each VEC.

- **Step 6**: Provide recommendations as to how cumulative impacts on each VEC can be managed.

D. Main Tasks.

Step 1: Define the scope of the CIA

16. The first step in the CIA is to describe the MMFMP project and its phases that may give rise to cumulative effects. This will include the following:

    - Phases and timing of the project;
    - Description of the scheme and project area of influence;
    - Description of offsite facilities e.g. disposal sites for dredged material;
    - Identify environmentally sensitive areas, including protected areas, key stakeholders and affected people.
    - Define geographic and temporal boundaries for the CIA based on screening of potential impacts on key environmental components. The geographic context could include administrative boundaries (city or municipal). It is noted that there might be different contexts for each VEC (see below). The definition will also need to include the scale of maps and other tools to present data that will be collected during the study.

17. **Define VECs.** Valued environmental and social components, or VECs, are environmental and social attributes that are subject to cumulative effects. VECs may be: • physical features, habitats, wildlife populations (e.g., biodiversity), • ecosystem services, • natural processes (e.g., water and nutrient cycles, microclimate), • social conditions (e.g., health, economics), or • cultural aspects (e.g., traditional spiritual ceremonies) (IFC, 2013).

18. The ESMF and consolidated ESIA done under Phase 1 of MMFMP has identified the following key issues of impacts associated with the construction, operation, and decommissioning of the Project:

    - Impacts on Informal Settlers related to resettlement away from the waterways;
    - Impacts due to dredging activity and disposal of dredged materials;
    - Impacts due to generation of solid waste from the pumping stations;
    - Impacts due to odors;
    - Impacts on the livelihood of local communities;
    - Visual and aesthetic impacts.

19. The VECs should be defined based on the assessment of impacts on the above impacts and through consultations with stakeholders.

Step 2: Identify other projects and activities within geographic and temporal boundaries of the CIA

20. Past, present and probable future projects and activities should be identified within the defined temporal and spatial framework. It is noted that these projects need not to be limited to flood management related activities or urban renewal activities – they could include wastewater treatment facilities, government dredging programs, housing and resettlement programs, solid waste management and similar. The evaluation of other projects and activities should consider the following:

- Include those projects of known footprint that can be assessed;
- Consider a time frame that extends backwards to a pre-development scenario and forwards as realistically as possible;
- Include projects that are approved, awaiting approval, announced or under design;
- Include projects that impact on selected valued environmental components;
- Include those projects whose environmental and social impacts and contribution to cumulative effects can be reasonably predicted, particularly projects with direct impacts on water resources, community health and safety;
- Discuss pending projects with regulators and incorporate the concerns of affected stakeholders; and
- Prepare a map or schematic of all existing and planned projects the basic information on location, cost, size, project components etc.

Step 3: Assess the status and condition of each valued environmental component (VEC)

21. The existing condition and status of each valued environmental component should be assessed, including trends in its condition over time. The determination of the trend in the status of the VEC may be indicative of the level of concern for cumulative impacts. A negative decline in status of a given VEC may indicate that a threshold may be approached whereby the contribution of each individual project to cumulative impacts could be considered significant (IFC, 2013).

22. The collection and analysis of the status of each VEC and its trend in condition can be difficult. Multiple data sources should be used. The object is to develop a picture of the change in condition of VEC over time in order to assess is sensitivity to cumulative impacts.

Step 4: Assess the Level of Cumulative Impacts on each VEC

23. The next step in the CIA process is to assess the level of cumulative impacts on each VEC. This can use similar methodology to that is employed in EIA, but the difference is that the CIA is focused on assessing the cumulative impact on each valued environmental component from the MMFMP and other projects within a defined spatial and temporal framework. For each VEC, the cumulative effects should consider typical components of an EIA assessment – extent, frequency, duration, magnitude, uncertainty and probability etc. Techniques will need to relay on qualitative data and already available quantitative data; no significant field work for quantitative data collection is envisaged.

Step 5: Determine the significance of cumulative impacts.

24. Once cumulative impacts are determined, their significance must be considered relative to an established threshold limit, an established legal guideline or policy, or a qualitative assessment based on professional opinion and consultation. The local Philippine thresholds/standards on air, water, toxic and hazardous compounds, noise, may be used, if applicable. In any case, the significance of the cumulative impacts must be defensible. The significance of the cumulative impacts and the contribution of the project must be subsequently evaluated by project decision makers. The consultant will need to define the level of "significance" or scale (aligning with legal requirements in the Philippines if applicable) and apply it consistently. The significance should be assessed across past,

present and future projects on the trends of each VEC. The significance of the project interventions' contribution to the cumulative impacts should be defined in one of the following ways:

- The project has a measurable effect on the VEC;
- The project acts in conjunction with the effects of past present or future projects and activities; and;
- The project in conjunction with other projects and activities shifts the resource to an unacceptable level or exceeds a threshold such that the impact is considered significant, in that:
    - The project's contribution to cumulative effects is responsible for exceeding the threshold and therefore is significant or,
    - The project is contributing with the effects of other projects and activities and the project contribution may or may not be significant, depending on the level of the contribution.

Step 6: Formulate management recommendations for cumulative impacts on each VEC

25. The CIA should reach a conclusion on whether the contribution, if any, to the cumulative impacts on each VEWC by the MMFMP is significant or not. An action plan (with time, institutional responsibilities, budget) should be developed based on this conclusion, and clearly define what mitigation measures need to be incorporated into the project Environmental and Social Management Plan, and what mitigation/environmental management measures should be carried out above the project level and carried into the design of phase 2 of MMFMP. The management plan will be in three parts: (i) management plan for additional measures needed to be included in phase 2 of MMFMP; (ii) recommended measures for the future projects in the area; and (iii) measures addressing needs for institutional and legal frameworks and acquisition of knowledge to address data gaps. The recommendations will need to also include proposed adaptive management approaches for impacts that still will have high level of uncertainty or lack sufficient information for an adequate assessment (e.g construction of a hydro dam in the Marikina watershed).

26. Mitigation/environmental management measures that are needed but beyond the scope of the project, will be presented to relevant (government) agencies/entities in the form of a workshop, and finalized based on the views by the agencies. Their endorsement/acknowledgement on the recommendations from the CIA should be sought.

Presentation and Consultation.

27. The consultant will organize and carry out workshops in the Metro Manila area (the specific sites and participants will be agreed upon with MMDA/DPWH) to present the findings of the CIA. To ensure meaningful consultations throughout the course of the CIA, key stakeholders, particularly for defining the Valuable Environmental Components and final results should be clearly documented. The records of public consultations undertaken will form part of the final deliveries by the firm.

28. The expected result of the workshops will be the following: (i) stakeholders will validate environmental, social (including resettlement), health, safety and security priority concerns at the local level; (ii) workshops should also be a way of informing and engaging stakeholders in the immediate vicinity of the project and impacted area subject to this cumulative assessment; (iii)

vulnerable stakeholders (informal settlers, women, children, youth and others) should fully participate in the process, not only leaders, groups and NGOs that claim to represent their interests.

E. Outputs

29. Reports under this assignment will be phased along the main 6 steps of the CIA. Each of the reports will be presented for discussion with the client and for comments (including from the World Bank safeguards team) to be able to make updates and changes to each report.

    - Inception report within 2 weeks after contract signing providing details on phases, intermediate outputs and confirming timing.
    - Draft Segment 1 (data) – Metro Manila data and scoping report, including VECs and proposed geographic and temporal boundaries for CIA (within 1.5 month from signing).
    - Draft Segment 2 (scoping of impacts) – Key MMFMP-related contributions to cumulative effects on selected VECs, such as community health, community safety, quality of life, and water quality (within 2.5 months from signing).
    - Draft Segment 3 (assessment of impacts) – Assessment of the level of cumulative effects and defining levels of significance of cumulative effects across time lines (within 3 months from signing).
    - Draft Final Report including Segment 4 (Recommendations) in the form of a Management Plan (within 3.5 months after signing).
    - Final report including all segments ready for public presentation (within 4 months).

30. Based upon the results of the CIA Report, the firm will organize and carry out workshops in Metro Manila (the specific sites and participants will be agreed upon with MMDA/DPWH). The firm will be responsible for materials and presentations (content) during consultations as well as identifying target groups. Project together with MMDA and DPWH will support logistics for the events as appropriate.

F. Duration and Timing

31. The CIA Report should be completed within 4 months of commencement. All reports should be prepared in English. The final presentation workshop should be held within 5 months of commencement of the contract.

G. Institutional Arrangements

32. The consultant shall report to MMDA/DPWH and liaise with other agencies of the government including LLDA, DENR, and local government units. Existing EIAs, EMPs, and plans for development will be provided by relevant agencies with facilitation from MMDA and DPWH.

33. Coordination and contract management will be carried out by MMDA and DPWH Project Management Office.

34. The final output will be subject to acceptance by MMDA/DPWH and World Bank for compliance with the World Bank guidelines for safeguards.

H. Team Qualifications

35. To qualify to carry out the work the firm must be a consortium comprising an international consulting company or non-governmental organization (NGO) and a local NGO or consulting company based in the Philippines ("the consultant"). The firm must have the following qualifications:

- An adequate team of consultants with experience in consulting domestically and internationally on this topic. In particular, the firm should demonstrate experience in undertaking CIAs following an internationally recognized CIA methodology.
- Firms must have sound knowledge and at least five years' work experience plus experience on at least two similar assignments in a country other than their own, and must have good knowledge of environmental regulations in developed countries.
- The team should comprise the following specialists:

    - A Team Leader who is skilled at leading and managing inter-disciplinary teams, can produce well-written reports on time, and is knowledgeable about strategic environmental assessments and extractive industries. Experience in Philippines is desirable.
    - An Infrastructure Specialist with at least ten years of relevant experience in infrastructure policy and public administration. .
    - A Flood or Hydraulics/Hydrology Specialist who is knowledgeable in Philippine geography and in flood management technologies and practices
    - An Environmental Engineer or Scientist who is knowledgeable about the impacts of flood management/urban renewal related activities. Experience in Philippine environmental issues is desirable. Proven experience in environmental regulatory frameworks and environmental standards is required.
    - A Social Development Specialist who is knowledgeable about the direct and indirect social impacts (positive and negative) of flood management-related activities including public health and safety. S/he should have proven experience in resettlement of informal settlers. Experience in the Philippine culture, practices and customs is desirable.
    - A Stakeholder Engagement Specialist who can effectively manage stakeholder engagement throughout the preparation process, including the facilitation of public consultation events and other large meetings.

Specific technical inputs on legal, infrastructure development projects and gender should be provided by the team as needed.

I. Fees for Consulting Services

Estimated cost (US$)
Remuneration: US$147,000 • 3 international experts x 2 months x US$20,000 = US$120,000 • 3 local experts x 3 months x US$3000 = US$27,000 Reimbursable expenses: US$53,000
Total estimated cost –US$200,000

ANNEX H: ENVIRONMENTAL CODES OF PRACTICE IN THE REHABILITATION OF PUMPING STATIONS

1.1 Intent of ECOPs

These Environmental Codes of Practice (ECOPs) have been prepared to define methods and/or procedures to be followed by consultants, designers, and contractors for the avoidance or mitigation of adverse environmental and social impacts that may arise out of the rehabilitation and modernization of pumping stations under the MMFMP. The definitions of terms used in the ECOP are set out below.

1.2 Definition of Terms

MMDA	Metropolitan Manila Development Authority. The entity that engages the principal consultant to design and/or supervise the rehabilitation/modernization of pumping stations in Metro Manila
Project	Shall include development, new construction, upgrading, rehabilitation. reconstruction and maintenance of pumping stations.
Consultant	The firm or design team engaged by the MMDA to undertake either the investigation, the design or the construction supervision of the project.
Designer	The person, group or groups that undertake the various phases of project preparation and/or construction supervision.
Engineer	A licensed member of the Philippine Regulatory Commision
Contractor	The firm engaged by the MMDA to construct the project or direct the labour team if construction is to be carried out directly by the client.
DENR	Department of Environment and Natural Resources
DPWH	Department of Public Works and Highways
EIA	Means the comprehensive study or detailed environmental impact assessment.
EMB	Environmental Management Bureau

1.3 Objectives of the ECOPS

The objective of these ECOPs are to cover the typical impacts associate with the rehabilitation and modernization of pumping stations in the context of Metro Manila. It will ensure that all people involved in development project planning, design, construction and maintenance are aware of the need for the ECOP, and implement the systems for the prevention or mitigation of adverse environmental and social effects of activities related to rehabilitation of pumping stations. The ECOP shall be followed for the planning, design and construction of all pumping station rehabilitation works. The ECOP will establish guidelines for managing and minimizing potential environmental (including social) impacts of rehabilitation and modernization of pumping stations, by outlining principles and minimum standards which shall be taken into account in the planning, design, and construction phases.

1.4 Implementation

These ECOPs have been introduced in the MMFMP Project to simplify the implementation of safeguards in the rehabilitation of pumping stations.

There are three implementation mechanisms for the ECOP:

1) Use of the ECOP is specified in the Bidding documents through the Terms of Reference for the design of works. The relevant design directives stated in the ECOP should also be incorporated in the Terms of Reference;
2) Use of the ECOP is specified in the specifications for the construction of physical works. The relevant suggested specifications stated in the ECOP should also be incorporated in the specifications.
3) Approvals by the MMDA and World Bank are granted with the condition that works proceed under the provisions of the ECOP

1.5 Monitoring

MMDA personnel and the PMO of the project will monitor the implementation of the ECOP through regular supervision of works. The ECOP will also be monitored through normal contract administration procedures.

1.6 Main Environmental and Social Issues typical of Pumping Station Rehabilitation and Modernization

- Dredge material generation
- Solid Waste
- Dust generation
- Air pollution
- Impacts from noise and vibration
- Water pollution
- Drainage and sedimentation
- Management of stockpiles
- Chemical and hazardous wastes
- Traffic management
- Interruption of utility services
- Restoration of affected areas
- Worker and public safety
- Communication with local communities
- Chance finds

1.7 Codes of Practice

ENVIRONMENTAL CODES OF PRACTICE (ECOPs)

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
1. Dust generation	• The Contractor is responsible for compliance with relevant Philippine legislation with respect to ambient air quality. • The Contractor shall ensure that the generation of dust is minimized and is not perceived as a nuisance by local residents and shall implement a dust control program to maintain a safe working environment and minimize disturbances for surrounding residential areas/dwellings. • The Contractor shall implement dust suppression measures (e.g. use water spraying vehicles) as required and appropriate. • Material loads shall be suitably covered and secured during transportation to prevent the scattering of soil, sand, materials, or dust. • Exposed soil and material stockpiles shall be protected against wind erosion and the location of stockpiles shall take into consideration the prevailing wind directions and locations of sensitive receptors.	• May occur when structures are demolished.
2. Air pollution	• All vehicles must comply with Philippine regulations controlling allowable emission limits of exhaust gases. • Vehicles in the Philippines must undergo a regular emissions check. • There should be no burning of waste or materials on site. • Generators must have an air permit from the DENR	• May occur when structures are demolished.
3. Impacts from noise and vibration	• The contractor is responsible for compliance with the relevant Philippine legislation with respect to noise and vibration. • When needed, measures to reduce noise to acceptable levels must be implemented and could include silencers, mufflers, acoustically dampened panels or placement of noisy machines in acoustically protected areas.	•
4. Water pollution	• The Contractor must be responsible for compliance with the relevant	• Applies specifically

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
	Philippine legislation relevant to wastewater discharges into watercourses. • Portable or constructed toilets must be provided on site for construction workers. Wastewater from toilets as well as kitchens, showers, sinks, etc. shall be discharged into a tank for removal from the site or discharged into municipal sewerage systems; there should be no direct discharges to any waterbody. • Wastewater over permissable values set by relevant Philippine effluent standards/regulations (DAO 35) must be collected in a tank and removed from site by licensed waste transporter and collector. • At completion of construction works, water collection tanks and septic tanks shall be covered and effectively sealed off.	to temporary workers quarters.
5. Solid waste	• Before construction, a solid waste control procedure (storage, provision of bins, site clean-up schedule, bin clean-out schedule, etc.) must be prepared by Contractors and it must be carefully followed during construction activities. • Before construction, all necessary waste disposal permits or licenses must be obtained. Arrangements with a solid waste transporter should be obtained. • Measures shall be taken to reduce the potential for litter and negligent behavior with regard to the disposal of all refuse. At all places of work, the Contractor shall provide litter bins, containers and refuse collection facilities. • Solid waste may be temporarily stored on site in a designated area recommended by the Construction Supervision Consultant and approved by the MMDA/DPWH PMO's project manager. Waste storage containers shall be covered, tip-proof, weatherproof and scavenger proof. • No burning, on-site burying or dumping of solid waste shall occur.	•

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
	• Recyclable materials such as wooden plates for trench works, steel, scaffolding material, site holding, packaging material, etc shall be collected and separated on-site from other waste sources for reuse, for use as fill, or for sale. • If not removed off site, solid waste or construction debris shall be disposed of only at sites identified and approved by the Construction Supervision Consultant and included in the solid waste plan. Under no circumstances shall the contractor dispose of any material in watercourses.	
6. Chemical or hazardous wastes	• Chemical waste of any kind shall be disposed of at an approved appropriate landfill site and in accordance with local legislative requirements. The Contractor shall obtain needed disposal certificates. • The removal of asbestos-containing materials or other toxic substances shall be performed and disposed of by specially trained and certified workers. • Used oil and grease shall be removed from site and sold to an approved used oil recycling company. • Used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery shall be collected in holding tanks and removed from site by a specialized oil recycling company for disposal at an approved hazardous waste site. • Used oil or oil-contaminated materials that could potentially contain PCBs shall be securely stored to avoid any leakage or affecting workers. The Chemicals Section of the Environmental Management Bureau of the DENR, must be contacted for further guidance. • Relevant agencies shall be promptly informed of any accidental spill or incident.	• The decommissioning of equipment/machines may generate toxic / hazardous compounds such as lubricants/ petroleum products, etc…

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
	• Store chemicals appropriately and with appropriate labeling • Appropriate communication and training programs should be put in place to prepare workers to recognize and respond to workplace chemical hazards Prepare and initiate a remedial action following any spill or incident. In this case, the contractor shall provide a report explaining the reasons for the spill or incident, remedial action taken, consequences/damage from the spill, and proposed corrective actions.	
7. Management of dredge material / sludge	1 Dredging plan should be established including time schedule, method statement to meet the requirements of traffic safety, public health and environmental sanitation. In order to ensure dredging that is consistent with environmental regulations, key decision makers (MMDA, DPWH, DENR, LGU, etc.) must be involved and concur in each key decision point in the process leading to preparation and implementation of a plan. • Characteristics of sludge/sediment should be determined by sampling and analysis. Sludge that is heavily contaminated would require measures that go beyond the scope of these ECOPs. • Ensure that dredged material management plans incorporate environmental considerations in the identification of short-term and long-term disposal alternatives, consider methods to reduce dredging, and maximize the beneficial use of dredged materials. • Dredging work should be conducted when water flow is high to allow the dredged materials can be separated into the sediment and the supernatant water (i.e., spoil) by settling. • Leachate from dredged materials should not be allowed to enter watercourses without appropriate filtering or treatment. • Collected dredged materials have to be processed, as per Philippine regulations on waste collection, to ensure safe and environmentally	• As per Schedule 3 of RA 6969, the standard test for toxicity is the Toxicity Characteristic Leaching Potential (TCLP).

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
	secure transportation, storage, treatment and management • Those involved in handling of sludge should be specialized and have previous experience in sludge handling. Guidelines for certification of sludge handling is in DENR's regulations (RA 6969) on management of hazardous substances • Sanitary landfills site should meet technical requirements, based on level of potential contamination.	
8. Traffic management	• Before construction, carry out consultations with local government and community and with traffic police. • A traffic management plan must be prepared and implemented. • Significant increases in number of vehicle trips must be covered in a construction plan previously approved. Routing, especially of heavy vehicles, needs to take into account sensitive sites such as schools, hospitals, and markets. • Installation of lighting at night must be done if this is necessary to ensure safe traffic circulation. • Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning. • Employing safe traffic control measures, including road/rivers/canal signs and flag persons to warn of dangerous conditions. • Avoid material transportation for construction during rush hour. • Passageways for pedestrians and vehicles within and outside construction areas should be segregated and provide for easy, safe, and appropriate access. Signpost shall be installed appropriately in both water-ways and roads where necessary.	• This is applicable to this project when transporting the heavy machinery to replace the existing pump motors.

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
9. Restoration of affected areas	• Cleared areas such as disposal areas, site facilities, workers' camps, stockpiles areas, working platforms and any areas temporarily occupied during construction of the project works shall be restored using landscaping, adequate drainage and revegetation. • Start revegetation at the earliest opportunity. Appropriate local native species of vegetation shall be selected for the planting and restoration of the natural landforms. • Spoil heaps and excavated slopes shall be re-profiled to stable batters, and grassed to prevent erosion; • All affected areas shall be landscaped and any necessary remedial works shall be undertaken without delay, including green-spacing, roads, bridges and other existing works • Trees shall be planted at exposed land and on slopes to prevent or reduce land collapse and keep stability of slopes • Soil contaminated with chemicals or hazardous substances shall be removed and transported and buried in waste disposal areas. • Restore all damaged road and bridges caused by project activities	•

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
10. Worker and public Safety	• Contractor shall comply with all Philippine regulations and World Bank EHS guidelines regarding worker safety. • Prepare and implement action plan to cope with risk and emergency • Preparation of emergency aid service at construction site • Training workers on occupational safety regulations • Ensure that ear pieces are provided to and used by workers who must use noisy machines, for noise control and workers protection. • During demolition of existing infrastructure, workers and the general public must be protected from falling debris by measures such as chutes, traffic control, and use of restricted access zones. • Install fences, barriers, dangerous warning/prohibition site around the construction area which showing potential danger to public people • The contractor shall provide safety measures as installation of fences, barriers warning signs, lighting system against traffic accidents as well as other risk to people and sensitive areas. • If previous assessments indicate there could be unexploded ordnance (UXO), clearance must be done by qualified personnel and as per detailed plans approved by the Construction Engineer.	• Unexploded ordinances have been unearthed in some areas of Manila dating back to WW2 when Manila was carpet bombed.
11. Communication with local communities	• Maintain open communications with the local government and concerned communities; the contractor shall coordinate with local authorities (leaders of baranggays or puroks) for agreed schedules of construction activities at areas nearby sensitive places or at sensitive times (e.g., religious festival days). • Copies of these ECOPs and of other relevant environmental safeguard documents shall be made available to local communities and to workers at the site. • Disseminate project information to affected parties (for example local authority, enterprises and affected households, etc) through community	•

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
	meetings before construction commencement; • Provide a community relations contact from whom interested parties can receive information on site activities, project status and project implementation results; • Provide all information, especially technical findings, in a language that is understandable to the general public and in a form of useful to interested citizens and elected officials through the preparation of fact sheets and news release, when major findings become available during project phase; • Monitor community concerns and information requirements as the project progresses; • Respond to telephone inquiries and written correspondence in a timely and accurate manner; • Inform local residents about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, blasting and demolition, as appropriate; • Notification boards shall be erected at all construction sites providing information about the project, as well as contact information about the site managers, environmental staff, health and safety staff, telephone numbers and other contact information so that any affected people can have the channel to voice their concerns and suggestions.	
12. Chance find procedures	If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall: • Stop the construction activities in the area of the chance find;	• The National Museum is in charge of chance finds in the Philippines.

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
	• Delineate the discovered site or area; • Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the National Museum takes over; • Notify the Construction Supervision Consultant who in turn will notify responsible local or national authorities in charge of the Cultural Property (within 24 hours or less); • Relevant local or national authorities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values; • Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage; • If the cultural sites and/or relics are of high value and site preservation is recommended by the professionals and required by the cultural relics authority, the Project's Owner will need to make necessary design changes to accommodate the request and preserve the site; • Decisions concerning the management of the finding shall be communicated in writing to relevant authorities;	

ENVIRONMENTAL – SOCIAL ISSUES	MITIGATION MEASURE	Comments
	• Construction works could resume only after permission is granted from the responsible local authorities concerning safeguard of the heritage.	

ANNEX I: CHANCE FIND PROCEDURE

Contracts for civil works involving excavations will incorporate procedures for dealing with situations in which buried Physical Cultural Resources (PCR) are unexpectedly encountered. The final form of these procedures will depend upon the local regulatory environment, including any chance find procedures already incorporated in legislation dealing with antiquities or archeology.

Note: Resource persons from the Cultural Properties Division of the National Museum are the designated officials in-charge of these matters.

Republic Act No. 10066, *An Act Providing for the Protection and Conservation of the National Cultural Heritage, Strengthening the NCCA and its Affiliated Cultural Agencies, and for Other Purposes,* which was signed by HE Gloria Macapagal-Arroyo on March 26, 2010. This procedure is based on the provisions stated in this Act.

1. PCR Definition

Movable or immovable objects, sites, structures or groups of structures having archeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. The following are also specifically defined under the new Act

(a) **"Built Heritage"** shall refers to architectural and engineering structures, such as but not limited to bridges, government buildings, houses of ancestry, traditional dwellings, quartels, train stations, lighthouses, small ports, educational technological and industrial complexes, and their settings, and landscapes with notable historical and cultural significance;

(b) **"Cultural Heritage"** shall refer to the totality of cultural property preserved and developed through time and passed on to posterity;

(c) **"Cultural Property"** shall refer to all products of human creativity by which a people and a nation reveal their identity, including churches, mosques and other places of religious worship, schools and natural history specimens and sites, whether public or privately-owned, movable or immovable, and tangible or intangible;

(d) **"Important Cultural Property (ICP)"** shall refer to a cultural property having exceptional cultural, artistic, and historical significance to the Philippines, as shall be determined by the National Museum and/or National Historical Institute.

(e) **"Tangible cultural property"** shall refer to a cultural property with historical, archival, anthropological, archaeological, artistic and architectural value, and with exceptional or traditional production, whether of Philippine origin or not, including antiques and natural history specimens with significant value.

(f) ***Indigenous properties.*** - The appropriate cultural agency in consultation with the National Commission on Indigenous Peoples shall establish a program and promulgate regulations to assist indigenous people in preserving their particular cultural and historical properties.

2. Ownership

All cultural property found in terrestrial and / or underwater archaeological sites belong to the State. The Commission, upon the recommendation of the appropriate cultural agency, shall provide incentives for persons who discover and report heretofore unknown archaeological sites, in accordance with its rules and regulations implementing the provisions of this Act.

3. Recognition

This is the most difficult aspect to cover. As noted above, in PCR-sensitive areas, the procedure may require the contractor to be accompanied by a specialist. In other cases, the procedures may not specify how the contractor will recognize a PCR, and a clause may be required by the contractor disclaiming liability.

4. Procedure upon Discovery

Suspension of Work

When the presence of any cultural or historical property is discovered, the contractor must immediately report the discovery to the Resident Engineer or Supervisor. The National Museum or the National Historical Institute shall immediately be contacted and informed of the chance find. The contractor will suspend all activities that will affect the site and shall immediately notify the National Museum (see contact details provided below). The local government unit having jurisdiction where the discovery was made shall promptly adopt measures to protect and safeguard the integrity of the cultural property so discovered and within five (5) days from the discovery shall report the same to the appropriate agency. The suspension of these activities shall be lifted only upon the written authority of the National Museum or the National Historical Institute and only after the systematic recovery of the archaeological materials.

After stopping work,

The contractor may not be entitled to claim compensation for work suspension during this period.

The Resident Engineer may be entitled to suspend work and request from the contractor some excavations at the contractor's expense if he thinks that a discovery was made and not reported.

Demarcation of the Discovery Site

With the approval of the Resident Engineer, the contractor is then required to temporarily demarcate, and limit access, to the site.

Non-Suspension of Work

The procedure may empower the Resident Engineer to decide whether the PCR can be removed and for the work to continue, for example in cases where the find is one coin.

Chance Find Report

The contractor should then, at the request of the Resident Engineer, and within a specified time period, make a Chance Find Report, recording the following:

- Date and time of Discovery;
- Location of the Discovery;
- Description of the PCR, with photos if possible;
- Estimated weight and dimensions of the PCR;
- Temporary protection implemented.

The Chance Find Report should be submitted to the Resident Engineer, and other concerned parties as agreed with the cultural authority, and in accordance with national legislation.

The Resident Engineer, or other party as agreed, is required to inform the cultural authority accordingly.

Responsible Authority in the Philippines:
Mr. Angel Bautista
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